

British Birds

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British Birds

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Editorial

The conservation of wetlands

On 21st December 1975 the 'Convention on Wetlands of International Importance, Especially as Waterfowl Habitat' came into force. The Council of Europe's Information Centre for Nature Conservation has launched a publicity campaign for 1976, dedicated to the conservation and management of wetlands. These two actions taken together show the great importance that is now attached on an international scale to the protection of this particular habitat and its wildlife.

Wetlands are probably now receiving, and deserving, more attention than any other type of habitat, apart perhaps from tropical forests. The reasons for this are clear. The number and extent of natural wetlands, marshes, estuaries and coastal lagoons, are strictly limited and they are difficult and costly to create artificially. Their richness in terms of the enormous and specialised range of animal and plant life is unequalled, at any rate in temperate climates. The pressures on them are immense, both from reclamation and drainage schemes involving their destruction, and from recreational activities which may leave the habitat relatively untouched, but drive away much of the wildlife.

Man-made wetlands, mainly reservoirs and gravel pits, are still increasing but concern over the loss of agricultural land has put a brake on the creation of further large reservoirs, at least in lowland Britain. We are also past the peak of undisturbed reservoir acreage, which until a few years ago formed an extremely important network of freshwater bird refuges. The striking growth in water sports has led to the opening up of previously sacrosanct waters, and the virtually compulsory use of all new reservoirs for recreation.

It sometimes might be thought that wetlands receive more than their share of attention. But apart from the reasons already given for their conservation a glance at any list of major sites of scientific interest that have been seriously threatened in the last ten years will show that a high proportion of them are wetlands, for example: the Waddensee, Netherlands; Foulness, the Cromarty Firth and the Medway estuary, Britain; North Bull and Wexford Slobs, Ireland; Thjorsarver, Iceland; the Lower Elbe estuary, West Germany; and the Danube delta, Romania. Threats to these places, and several more, have been the subject of action by conservationists throughout Europe and further afield, because it has been recognised that their importance is truly international.

The wildfowl and wader counts organised throughout much of Europe and North Africa in the last eight years by the International Waterfowl Research Bureau have for the first time provided reliable criteria against which to assess the importance to these birds of a particular site. Comparable studies on other parts of the fauna and flora of wetlands have lagged well behind those on the birds but it is fair to assume that any wetland capable of sustaining a wealth of bird life is necessarily very rich and productive in other ways.

It was in 1962 that an international convention on wetlands and waterfowl conservation was first mooted. It gradually took shape over the years, helped by a series of firstly European and later fully international conferences on the subject. The final text was agreed at an international conference held in Ramsar, Iran, in February 1971. Countries which sign the Convention agree to promote the conservation of wetlands and waterfowl within their territory and in particular to designate at least one of their wetlands for inclusion in a List of Wetlands of International Importance. The Convention thus becomes the first multilateral agreement which modifies national land-use planning, an extremely important precedent.

It was agreed at Ramsar that the Convention would come into force four months after its ratification by the seventh contracting country. The Convention may be signed as a declaration of intent by a country which will then subsequently ratify it, or countries may sign without reservation as to ratification. Iran was the first country to sign, followed by Finland, but before either had ratified Australia signed without reservation and thus became the first fully contracting party to the Convention. Norway, Sweden and South Africa followed suit and by March 1975 these six countries had ratified. A further seven countries, the Soviet Union, Switzerland, West Germany, Italy, Ireland, Belgium and the United Kingdom, had signed only. It was hoped that the United Kingdom might become the seventh country to ratify and thus trigger the convention into action but the wheels of government moved too slowly and it fell

to Greece, who acceded on 21st August 1975, to perform this historic act. Since then Bulgaria has also become a Contracting Party.

Each ratifying country has duly designated one or more wetlands for inclusion in the List, and may, of course, add further wetlands at any time. Sweden leads with 20, followed by Iran with 18, and Finland and Greece each with eleven, while the remaining countries have each designated either one or two. They total in the region of 2,000,000 hectares of wetland habitat. As more countries become a party to the Convention, a world-wide network of wetland reserves of vital importance to waterfowl will be established, thus guaranteeing them an assured future.

It has taken nearly five years of bureaucratic delay from the agreement on the Convention to its coming into force. During this time valuable wetlands have been threatened and lost, perhaps only partially compensated in some areas by the creation of the Convention List. There is still a long and uphill struggle to ensure that more and more countries ratify the Convention and that they designate not just a token few wetlands, already fully protected, but a comprehensive and significant number. The Council of Europe's 1976 Wetland Campaign is much to be welcomed as providing a forceful stimulus through publicity and educational material aimed not just at the man in the street but also at the relevant government authorities to remind them of their responsibilities to the conservation of wetlands and waterfowl.

Voice, behaviour and display of Mediterranean Gulls

J. H. Taverner

Since 1966, Mediterranean Gulls *Larus melanocephalus* have bred or held territories in the seabird colony at Needs Oar Point, Hampshire (Taverner 1970, 1972). The colony is wardened at all times during the breeding season and this constant coverage, often from a hide at close range, has offered many opportunities to study behaviour and display of Mediterranean Gulls. It must be remembered, however, that the birds are in a colony of other species, mainly Black-headed Gulls *L. ridibundus*, and every Mediterranean Gull territory has been separated from others of its own species; their behaviour, therefore, might not be typical of a pure *melanocephalus* colony. For instance, a typical situation has been that of a male Mediterranean Gull defending a territory among a mass of Black-headed Gulls, which may have resulted in more aggression than would normally occur.

Typical behaviour and display seen at Needs Oar are categorised below, most of the postures adopted being illustrated in figs 1 to 9. My experiences, with those of D. A. Thelwell and Dr G. Fisher, have been much in line with Mauersberger's, who described the behaviour of Mediterranean Gulls in a major paper (1970).

VOICE

In territory, an unattached male was understandably very vocal, calling frequently until the end of May and easily audible in the middle of several thousand Black-headed Gulls. Once two birds had established a territory, they were mostly silent, though they were quite vocal whilst searching for a site. All calls that we heard were variations of one basic 'whaa' sound, not unlike the similar note of a Herring Gull *L. argentatus* in tone and quality, varying from a short monosyllabic 'whaa' through a disyllabic 'whaa-oo' and a trisyllabic 'whaa-oo-ah' to a full 'whaa-whaa-whaa-whaa-whaa-oo-ah'. When delivered on the ground, these notes were obviously a proclamation of territory, and each was delivered with a different and characteristic posc.

(1) When the single 'whaa' and disyllabic 'whaa-oo' were uttered the bird leaned forward with outstretched neck, and returned immediately to a normal standing position when the call was completed (fig. 1). These notes were also the standard ones uttered by birds flying calmly over an undisturbed colony, and also by birds flying over the head of an intruder in their territory; we could detect no difference in the calls used in these two very different situations,



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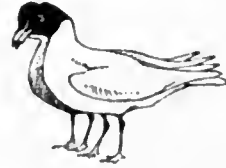
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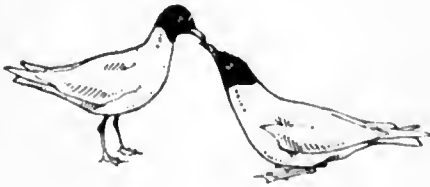
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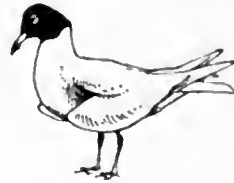
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D.A.T.

Figs. 1-9. Display postures adopted by Mediterranean Gulls *Larus melanocephalus* at seabird colony at Needs Oar, Hampshire. See text for full explanation (drawings by David A. Thelwell)

and I have heard exactly the same call from flocks of Mediterranean Gulls migrating through the Aegean in spring.

(2) Each syllable of the 'whaa-oo-ah' call was uttered from a different position (fig. 2). For the first syllable, the bird would lean forward and slightly downward, with the neck outstretched and the tail raised a little above the horizontal. The head would then be brought sharply upwards, with outstretched neck, at an angle of about 60° to the horizontal and the tail depressed for the 'oo' syllable. Finally, the head and neck were jerked forward to a position slightly above the horizontal for the final and rather explosive 'ah'. The whole performance took about three seconds. It was not used in aggression towards surrounding Black-headed Gulls but appeared simply to advertise the male's presence. We never saw a known female use this call, but most of the Needs Oar birds whose sex was determined were males; thus, this possible sexual difference in calling is not necessarily significant, although it would be normal for the male rather than the female to advertise the territory.

As with the flight note, I have also heard this trisyllabic note given by small flocks of migrating Mediterranean Gulls in spring in Greece, far from their colonies, and I have seen birds there use precisely the same three positions, but from a swimming position on the sea.

(3) The full development of (2) is an excited 'whaa-whaa-whaa-whaa-whaa-oo-ah'. The first note is quiet and low with the following 'whaa' syllables increasing in volume and intensity. These are all uttered from a similar position to that adopted for the first note of the trisyllabic call described above, but the bird is obviously more excited and the wings are drooped slightly (fig. 3). The last two 'oo-ah' notes are uttered with the same movements as in the trisyllabic call.

STOMPING

An unattached male in territory would spend much of its time just standing in a prominent part of its territory or simply sitting as though it were brooding, but every now and again it would patrol not only its own ground but the area for a metre or two around. At such times, the bird would often use a characteristic walk with the breast pushed out in front and the bill pointing downwards so that it rested on the breast (fig. 4). On occasions the wings would be very slightly drooped and the whole impression to human eyes was that of a bird trying to make the most of itself. Sometimes the neck feathers were slightly raised, giving the neck a swollen appearance, and we frequently noticed a sharp break in the contours of the bird where the black hood met the white body feathers resulting in a 'broken neck' look (fig. 7).

PAIR DISPLAY

We had limited opportunities of watching a pair together prior to nesting, but three types of behaviour seemed typical.

Bill rubbing The birds would stand side by side in their territory with necks slightly arched and bills pointing downwards at about 60°-70°, and in this position would gently rub bills together for a second or two (fig. 5).

Kissing The two birds would face one another, the presumed female crouching with head and bill pointing upwards so that the bill tip just touched the tip of her partner's bill, the presumed male standing with slightly arched neck and bill pointing downwards (fig. 6).

Overtures by a male A male making advances to its mate or to a female Black-headed Gull would shuffle forward with breast pushed out, bill depressed, wings drooped and held a little forward, neck 'swollen' and often with the 'broken neck' appearance (fig. 7).

HEAD SHAPE

Two characteristic head shapes were noticed which did not seem entirely to correspond with the bird's moods. In profile, the first of these showed a very rounded, woolly-headed appearance with the outline not quite smooth because the head feathers were slightly raised (fig. 8). Birds usually showed such a head shape when completely at ease (e.g. a brooding or off-duty bird in a period of calm for the whole colony) but some individuals showed this shape most of the time, even when not completely at ease. The second characteristic head shape (fig. 9) was particularly associated with aggressive males, though once again certain dominant individuals showed it most of the time. In this pose, the crown feathers were flattened so that in profile there was not much break in the sweep of the head from bill tip to crown, and the back of the head had a very angular appearance. This had the effect of making the bill look particularly long and massive, and the bird's head took on a very sleek appearance. The two outlines were so different that the species had two quite separate 'jizzes'.

BILL COLOUR

In view of bill descriptions by Hume and Lansdown (1974), it seems worth while making the following points about the Needs Oar birds. Bill colour varied considerably, to the extent that we were able to recognise individually most of the birds by this character. Nearly all the adult and second-year birds had light and bright yellow tips to their bills, usually beyond a dark band of varying size and intensity. East German opinion based on birds breeding along the Baltic coast is that the degree of yellow changes

with age (G. Mauersberger *in litt.*), but two males which held the same territories at Needs Oar from 1970 to 1974 appeared to have maintained the same pattern. As the yellow is so bright, it is surprising how difficult it is to detect at any range. A yellow-tipped bill that is striking when seen at close range from a hide can be impossible to see at 40 metres, even in excellent light. Great care should therefore be taken when analysing bill colours of birds seen in the field.

SUMMARY

The displays and calls used by Mediterranean Gulls *Larus melanocephalus* in a sea-bird colony at Needs Oar Point, Hampshire, are described. Two characteristic head shapes adopted by the species are also described, and attention is drawn to a possible error in interpreting the bill colour of birds seen in the field.

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Black Redstarts breeding in Britain in 1969-73

R. S. R. Fitter

This is the second of what is intended to be a series of quinquennial reports, based largely on records appearing in local bird reports. The first of the series (Fitter 1971) dealt with the years 1964-68. The historic counties are still used, to preserve continuity.

During 1969-73 the recorded breeding and territory-holding population of the Black Redstart *Phoenicurus ochruros* in Britain fluctuated rather more sharply than it had done in the previous 29 years (see fig. 1). The East Anglian population of Black Redstarts

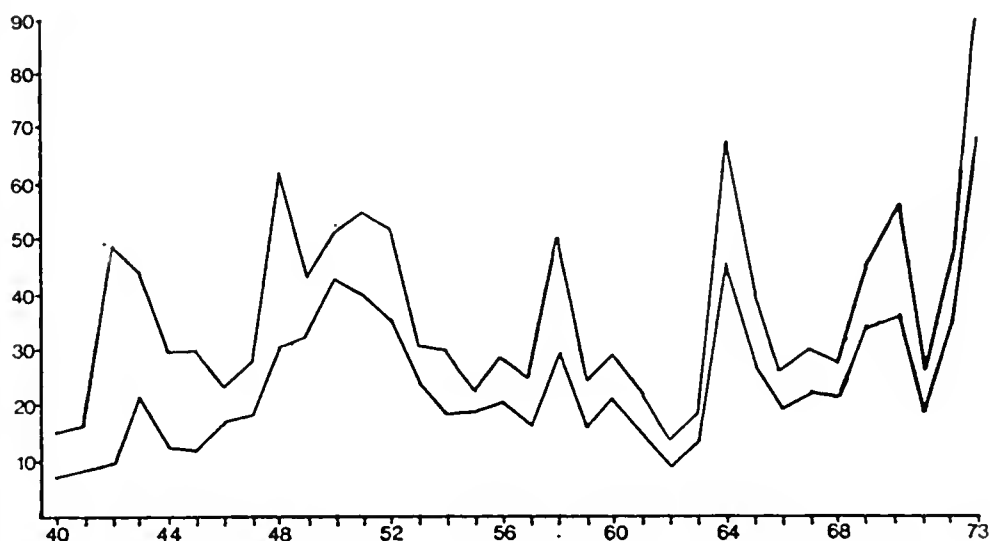
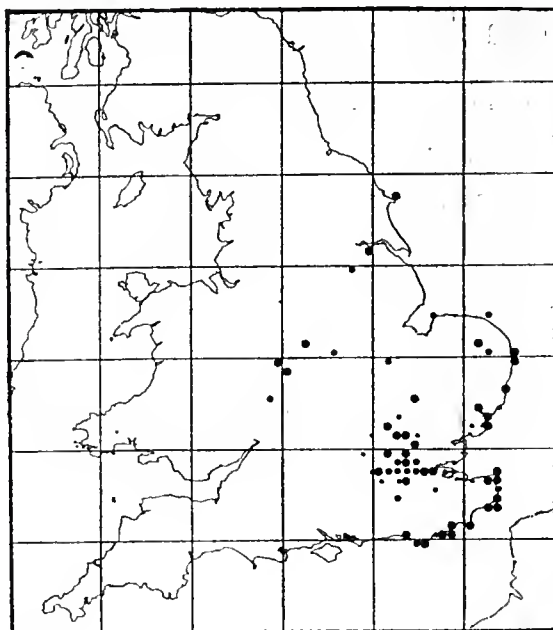


Fig. 1. Black Redstarts *Phoenicurus ochruros* in Britain in the breeding season from 1940 to 1973 (years along horizontal axis). The lower line shows the numbers of pairs, whether proved to have bred or not (first two columns in table 1 combined), and the upper the totals of territory-holding males (last column in table 1)

remained more stable than that of south-east England, where county totals varied greatly from year to year. In particular, 1971 showed a steep downward fluctuation which appears to have been a mere hesitation in a generally upward movement culminating in a record total of 63 breeding pairs and 90 territories held in 1973, the fifth such peak since 1940. There is no reason to suppose that these fluctuations were due to inadequate observation and recording, and it must be presumed that they represent real population changes. Incidentally, the figure is substantially greater than that given by the Rare Breeding Birds Panel in their first and second

Fig. 2. Breeding distribution of the Black Redstart *Phoenicurus ochruros* in Britain during 1968-72 (reproduced, by permission, from the BTO/IWC *Atlas of Breeding Birds in Britain and Ireland*): the smallest dot indicates possible breeding, the next probable and the largest confirmed breeding



reports (Sharrock and Ferguson-Lees 1975, Sharrock *et al.* 1975), largely because the present paper is based on local bird reports instead of *ad hoc* reports.

Table 1. Numbers of breeding pairs of Black Redstarts *Phoenicurus ochruros*, and of singing males holding territories, in Britain from 1967 to 1973

1967 and 1968 are included to cover the additional records for those years listed at the end of this paper

Year	Pairs proved to have bred	Pairs not proved to have bred	Territory-holding males not known to have paired	Total territory-holding males
1967	19	6	7	32
1968	18	5	4	27
1969	24	8	10	42
1970	26	8	20	54
1971	12	6	7	25
1972	31	4	10	45
1973	63	5	22	90

SUMMARY OF BREEDING RECORDS IN 1969-72

The number of historic English counties which have never yielded even a territory-holding male is now reduced to three: Cumberland, Rutland and Westmorland. There are, however, another four where a pair has never been proved to have bred: Gloucestershire, Herefordshire, Oxfordshire and Somerset.

1969 The upswing from the low levels of 1966-68 began, with 24 breeding pairs, the largest total since 1964, the previous peak, and a grand total of 42 territories held. Both the total of breeding pairs and the total of territories were the second largest since 1958. Breeding was proved in eight counties: Essex (Harlow, Parkeston Quay, Stratford, West Ham); Hertfordshire (Digswell); Kent (Dover, Dungeness, Ramsgate, St Margaret's Bay); Norfolk (Great Yarmouth); Suffolk (Lowestoft, Sizewell); Surrey (Croydon); Sussex (Bexhill); and Warwickshire (Birmingham). The absence of Middlesex from this list for the first time since 1940 is most striking. Elsewhere, there were pairs of singing males at Windsor, Berkshire; Barking, Dagenham and Walthamstow, Essex; Littlebrook, Kent; and Brentford, Brompton Cemetery and Cripplegate, Middlesex; thus, apart from the outlying population in Birmingham, the area occupied by breeding pairs continued to be the south-eastern, mainly coastal, stretch from Norfolk through London to Sussex.

1970 There was a minimal increase in pairs actually proved to have bred, and a larger one, to 54, in the total of territory-holding males, representing the second highest total since 1951. Breeding was proved in ten counties: Cambridgeshire (Cambridge), for the first time since 1958; Derbyshire (Drakelow), for the first time ever; Essex (Barking, West Ham, West Thurrock); Kent (Dartford, Dover, Littlebrook); Lincolnshire (Scunthorpe), for the first time ever; Middlesex (Tottenham); Norfolk (Cromer, Great Yarmouth); Staffordshire (Bilston); Suffolk (Oulton Broad, Sizewell); Surrey (Croydon); and Sussex (Brighton, Hastings). Elsewhere, there were pairs or singing males at Beckton, Rainham and Stratford, Essex; Dover, Dungeness and Ramsgate, Kent; Brentford, Cripplegate and Park Royal, Middlesex; Ipswich, Suffolk; and Brighton and the Hastings area, Sussex. The most interesting feature of the year was the spread of breeding to two new Midland counties.

1971 A puzzling hiccup in the upswing occurred, with proved breeding pairs down to 13, the lowest since 1962, and total territory-holders reduced to 25, the lowest since 1963. Breeding was proved in only six counties: Kent (Dover); Middlesex (St Katharine's Dock, Tottenham); Norfolk (Gorleston, Great Yarmouth); Staffordshire (Bilston); Suffolk (Lowestoft, Sizewell); Surrey (Croydon); and Sussex (Brighton). Elsewhere territories were held at Portland, Dorset; Stratford, Essex; Dover and Thamesmead, Kent; Leicester, for the first time ever in Leicestershire; Peterborough, Northamptonshire; Oulton Broad, Suffolk; and Southwark and Surrey Docks, Surrey. The collapse of the Essex and Sussex populations inevitably makes one wonder whether this is not an effect of observer error,

but such collapses have often happened before, e.g. in Kent and Middlesex.

1972 The upswing was resumed, with 31 pairs known to have bred and at least 45 territories held in all, the first figure the second highest since 1952, and the second representing the second highest total since 1958. Breeding was proved in ten counties: Bedfordshire (Luton), for the first time ever; Essex (Bromley by Bow, Romford); Kent (Dover, Dungeness, Northfleet); Middlesex (Fulham, Islington, Tottenham); Norfolk (Great Yarmouth, Hellesdon Mill); Staffordshire (Bilston); Suffolk (Ipswich Docks, Sizewell); Surrey (Croydon, Southwark, Surrey Docks); Worcestershire (Stourbridge), for the first time ever; and Yorkshire (Flamborough Head), for the first time since 1951. Elsewhere territories were held at Chester, Cheshire; King George V Reservoir and Stratford, Essex; Cripplegate and Park Royal, Middlesex; Norwich, Norfolk; Lowestoft, Suffolk; and Hastings, Sussex. The frequency with which familiar names such as Cripplegate, Dover and Hastings recur in the list of total territory-holders strongly suggests that the principal effect of observer error is failure to record actual breeding.

1973 This proved to be the outstanding Black Redstart year so far, the total of 63 breeding pairs exceeding by a substantial margin the previous highest of 40 in 1950, and the total of 90 territories held being similarly higher than the previous top figure of 69 in 1964. Breeding was proved in 15 counties: Bedfordshire (Luton); Berkshire (Maidenhead); Cheshire (Chester), for the first time ever; Essex (Grays, King George V Reservoir); Hampshire (locality not stated); Hertfordshire (south-east); Kent (Chatham, Dartford, Dover, Dungeness, Littlebrook, Northfleet, Ramsgate); Middlesex (Hendon, Kings Cross); Norfolk (Great Yarmouth, Norwich, Sheringham); Suffolk (Lowestoft, Oulton Broad, Sizewell, Felixstowe Docks, Ipswich Docks); Surrey (Croydon, Surrey Docks); Sussex (Bexhill, Brighton, Eastbourne, St Leonards-on-Sea); Worcestershire (Redditch); Yorkshire (Hull); and Orkney (Copinsay), for the first time ever in Scotland. Elsewhere territories were held at Windsor and Bracknell, Berkshire; Stratford and Tilbury Docks, Essex; Brimsdown power station, Heathrow airport, Tottenham and City of Westminster, Middlesex; Bilston, Staffordshire; Deptford, Kent; Northampton, Northamptonshire; and Birmingham, Warwickshire. There was also an unusual and suggestive group of three August records far to the west of the normal breeding range: Skokholm, Pembrokeshire, on the 1st; Llangorse Lake, Breconshire, on the 14th; and Clifden, Co. Galway, on the 29th.

SUMMARY OF RECORDS BY COUNTIES

†**Bedfordshire** A pair at Luton in 1972 was the first breeding record for the county, followed by another breeding pair and a singing male in 1973. Females, believed to be all different, at Sandy in May, June and August 1970 suggested the possibility of breeding nearby.

Berkshire A pair bred at Maidenhead in 1973. Singing males were present at Windsor in 1969 and 1973, and at Bracknell in 1973.

Buckinghamshire Last bred 1965.

Cambridgeshire A pair bred at Cambridge in 1970, the first since 1958. One near Cambridge station on 17th May 1973 could have been a migrant.

Cheshire A pair bred at Chester in 1973.

Cornwall Last bred 1939.

†**Derbyshire** A pair at Drakelow in 1970 was the first breeding record for the county. A female at the same place in July 1969 suggested possible breeding in that year too.

Devon Last bred 1949.

Dorset A pair, not proved to have bred, at Portland in 1971 was the only record for the period. Last bred 1965.

Durham Last bred 1845.

Essex Up to four pairs were proved to have bred in four out of the five years, and up to seven territories were held in each year, in eleven different localities, mainly in the London suburbs not far from the Thames estuary, but also inland at Harlow and on the coast at Parkeston Quay.

†**Gloucestershire** A male seen at Rendcomb on 13th May 1972 might well have been a migrant, but a male on 18th June 1972 near Colesbourne only about five kilometres away was probably not, so that a territory may well have been held in this district.

Hampshire A pair bred in Hampshire in 1973. One (sex not stated) at Fort Purbrook on 10th June 1972 is suggestive of potential breeding.

†**Herefordshire** Last breeding-season record 1958.

Hertfordshire A pair bred at Digswell, near Welwyn, in 1969, and another pair in the south-east of the county in 1973.

Kent Up to ten pairs were proved to have bred in each of the five years, and up to ten territories were held in each year, mainly on

the coast between Thanet and Dungeness and along the upstream part of the Thames estuary. Dover maintained its record of being one of only four towns in the whole country where breeding took place in each year.

Lancashire A female or immature at Rossall on 11th and 27th August 1971 is the only record suggestive of breeding. Last bred in 1950.

†**Lincolnshire** A pair at Scunthorpe in 1970 was the first breeding record for the county.

Middlesex Up to four pairs were proved to have bred in four out of five years, and up to eight territories were held in each year. Tottenham was the most constant breeding site, with other pairs also at Islington, Fulham and St Katharine's Dock. Breeding was never proved at Cripplegate, though it seems likely that it must have occurred at least in 1972, when a pair was present.

Norfolk Up to 19 pairs were proved to have bred and up to 20 pairs held territories in each year. Great Yarmouth was one of the only four places in the whole country where one or more pairs bred in each of the four years, culminating in the astonishing total of 17 pairs proved to have bred in 1973. Breeding also took place in Cromer, Norwich and Sheringham.

Northamptonshire A pair present at Peterborough in 1971. A territory held in Northampton in 1973. Last bred in 1967.

Northumberland A male on Coquet Island on 27th June 1972 seems unlikely to have been a migrant. Last bred in 1962.

Nottinghamshire Last bred in 1958.

†**Oxfordshire** Last breeding-season record 1958.

Shropshire Last bred in 1963.

Somerset Last breeding-season record 1968.

Staffordshire A pair bred at Bilston power station in each year from 1970 to 1972, and a male was singing there in 1973.

Suffolk Up to eleven pairs were proved to have bred and up to 13 pairs held territories in each year. Sizewell power station was another of the four places in England where pairs were proved to have nested each year. Other breeding localities were Ipswich, Lowestoft, Oulton Broad and Felixstowe.

Surrey Up to four pairs were proved to have bred and up to seven territories were held in each year. Croydon power station was the fourth constant breeding site in England, Southwark being the only other proved one in Surrey, and Surrey Docks an unproved one.

Sussex Up to four pairs were proved to have bred and up to five territories were held in each year. The breeding pairs were in Brighton in four out of five years, in the Hastings area in two years, and in Eastbourne in 1973.

Warwickshire A pair bred in Birmingham in 1969, and a male sang there in 1973.

†**Wiltshire** Last breeding-season record 1966.

†**Worcestershire** A pair at Stourbridge in 1972 was the first breeding record for the county, not the Redditch pair in 1973 as claimed by Sharrock and Ferguson-Lees (1975).

Yorkshire A pair bred at Flamborough Head in 1971, and another in Hull in 1973.

†**Wales** Birds seen on Skokholm, Pembrokeshire, on 1st August and at Llangorse Lake, Breconshire, on 14th August suggested the possibility of breeding somewhere in south Wales.

†**Scotland** A female sat on a nest containing infertile eggs on Copinsay, Orkney, and was seen by those (including the author) who attended the opening ceremony of that island as the James Fisher Memorial in July 1973. No male was ever seen. This constitutes the first nesting, if not first breeding record, for Scotland.

†**Ireland** An adult male at Clifden, Co. Galway, on the unusually early date of 29th August.

ADDITIONAL RECORDS FOR FORMER YEARS

1967 Dover, Kent: one pair bred, one non-breeding pair (G. E. Took).

1968 Digswell, Hertfordshire: one pair bred (*Hertfordshire Bird Report*, 1969). Dover, Kent: one pair bred, one non-breeding pair (G. E. Took).

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Viewpoint *John Gooders*

John Gooders is a philosopher by training and a birdwatcher by profession. He writes books, films and articles about birds and is worried by the persistent parochial nature of bird and wildlife conservation.

A question of priorities

There is, I believe, a prevalent tendency to think of birds (and any other form of life come to that) as the preserve of the scientist. This I dispute. It is the same as saying that steam engines belong to engineers, paintings to artists, or nuclear power to physicists. Anything and everything can be approached from a variety of different directions. Thus there is no reason why an artist should not comment on the aesthetic value of a steam engine, or a nuclear power station, as well as a painting. Of course, if an expert judgement is required it is relevant to ask an appropriate authority. I make these brief points simply because my approach to the question of priorities is essentially philosophical and, I hope, logical. With any luck I shall avoid making value judgements and keep emotion tightly under control.

Philosophers are generally unpopular because of their tendency to say something awkward about absolutely anything at all. Thus we have philosophers of science, of religion and of history, as well as moral philosophers and logicians. The question whether or not we should conserve and protect birds is essentially an ethical one. For though we hear a great deal about economic benefits, about harmful and beneficial species, about recreational value and so on, the ultimate question is 'have we any obligation to conserve birds?'. It can be argued that, if there were no birds, insect pests would get out of control, that many flowers would not be pollinated and, indeed, that the whole intricate system of life would collapse. This, for me, is sufficient in the philosophical sense. If the ecological structure of the life of the planet depends on the maintenance of the variety and populations of bird species then we ourselves are dependent on birds for our existence. Thus our being able to ask why we should conserve birds is dependent on the very existence of birds; it is a presupposition of asking the question. (Apologies to Professor R. S. Peters who is responsible for pointing out the validity, albeit in a different sphere, of this dialectic.)

Given that we ought to conserve birds, the next question is 'which ones?' Rather than attempt (falsely) to value one species against another in terms of human or even ecological usefulness, a simple and attractive answer is that we should conserve as many different species as possible. Variety is not only interesting, appeal-

ing and a good form of insurance, it is presupposed in our previous argument. For those who have borne with me so far the main course is not too far away.

If then we should seek to preserve all birds, some clearly are more in need of our help than others. The Red Data Book of the International Union for the Conservation of Nature (IUCN) provides us with a firm and well-founded basis. Among its pages are many species confined to small, isolated islands where, although the populations are low, there is no great cause for alarm. Thus the Waved Albatross *Diomedea irrorata* of the Galapagos receives an entry simply because its total world population is small, not because it is in any particular danger. On a similar basis a number of endemic island rails (Rallidae) merit a place. Alongside such highly localised birds, which have presumably never enjoyed a really large range, are species that were once more widespread but are now in the gravest danger of extinction. In this category the Cahow *Pterodroma cahow*, Japanese Crested Ibis *Nipponia nippon*, Western Tragopan *Tragopan melanocephalus* and Whooping Crane *Grus americana* come to mind. For some of these species much is already being done and if the Whooping Crane, for example, does not survive it will not be for lack of time, money and effort. Other species are less well served, particularly in the emerging countries of the third world. The Siberian White Crane *G. leucogeranus* may number no more than two thousand individuals which commute between their remote, but increasingly disturbed, breeding grounds in Siberia and a few wintering grounds in China, India, Afghanistan and perhaps still adjacent parts of the Middle East. There wetlands are drained and the birds shot, and only a small proportion of the population can be said to be even partially safeguarded.

It is in the nature of evolution to eliminate species and the cranes are a declining family. No doubt there are some birds that will continue to decline no matter what steps are taken to conserve them, but world-wide there are several hundred species that need help, need resources and need our care. It is significant that not one of them breeds or winters in Britain and Ireland.

Britain shelters several interesting endemic subspecies, only one of which, the Red Grouse *Lagopus lagopus scoticus*, has even tentatively been regarded as a full species. There is no evidence that this, or any other, British subspecies is in any imminent danger of extinction. We also provide a winter home for vast numbers of geese, ducks and swans that pour out of the Arctic to inhabit our estuaries and marshlands. Only one of these, the Barnacle Goose *Branta leucopsis*, has ever been in any real danger and a simple ban on shooting has had a dramatic effect on the population, which is now apparently strong and healthy. No doubt Britain is an important wildfowl

refuge and effort spent on protecting both the birds and their habitats is of international importance.

Similarly our estuaries are of importance to waders. Perhaps as many as a third of the birds that use the eastern Atlantic flyway are dependent to a greater or lesser extent on their maintenance and preservation. Yet we were remarkably slow in waking up to the fact. Systematic wader counting in Holland, Germany and even France predates our estuarine concern by several years. There are no species in danger here, but the destruction by development of a very few of our major intertidal areas could change the situation at a stroke.

Yet another area of international importance is our seabird colonies. Above all else it is the seabird colonies that attract overseas visitors to come birdwatching in Britain and Ireland. Only in very recent years have we devoted the time and resources to finding out just how many seabirds we actually have. Protection of colonies is still rather poor, though some famous reserves have been established for many years. Our seabirds are of major international importance and we should and must protect them.

Turning to the 'rare' birds about which we make such a fuss we find that Snowy Owls *Nyctea scandiaca*, Ospreys *Pandion haliaetus*, Marsh Harriers *Circus aeruginosus*, Avocets *Recurvirostra avosetta*, Black-tailed Godwits *Limosa limosa*, Red-necked Phalaropes *Phalaropus lobatus* and Dartford Warblers *Sylvia undata* are all widespread, numerous and doing quite well in other parts of the world. Several of these species are right at the edge of their range in Britain and cannot really be expected to prosper and increase unless the population as a whole increases. Why then do we lavish so much of the meagre resources available on them? Clearly it is not tied up with saving a species from the imminent danger of extinction. What we spend in a year on this little group of predominantly cosmopolitan species could be used with real effect in other parts of the world on other far more needy cases—on the Siberian White Crane in India for example, or on the Bald Ibis *Geronticus eremita* in Turkey and Morocco. 'But surely' I can hear 'isn't that just what the World Wildlife Fund is doing?' Unfortunately it is not. Of the money raised by the WWF a significant proportion is allocated to national projects within the country in which it is raised. Fair enough? Possibly. But of the remainder (a larger amount) a further, if variable, proportion is spent in the country of origin on projects of 'international importance'. So the very means by which we, the richer and more affluent countries, seek to channel our money into world conservation actually channel much of it straight back into national conservation. Further, as a large proportion of all money spent directly by the WWF in Britain (i.e.

not on science and research connected with wildlife) is spent on ducks, geese and swans, the WWF might well consider itself a branch of the Wildfowl Trust. Perhaps it would be better to give the money to the Royal Society for the Protection of Birds?

No case benefits from overstatement and my critics will be quick to point out that large sums of WWF money do find their way into really worthwhile overseas projects. My point is that the little old lady who pops a pound into a panda really believes that she is giving a pound to international conservation—not just a small proportion left after administration, home projects, and international projects at home have been deducted.

The RSPB is also responsible for spending a fortune every year in its efforts to 'protect' our birds. I am sorry that it is unable to spend money on other people's birds, or other people's animals come to that. Thus we have the benefit of the most expensive Ospreys, Marsh Harriers and Avocets in the world before our binoculars. It would sadden me not to have them, but that is being selfish. I do not suggest that the RSPB is wasting its money. Its conservation programme may be ideal, efficient and real value for money. Its educational and public relations efforts may be highly effective. And its research and support of scientifically based conservation research, like Operation Seafarer and the various projects of the British Trust for Ornithology, may be quite admirable and of inestimable importance. This is not at question. The point is that there are too many birds around the world which have, erroneously I am sure, chosen not to live in Britain. Instead they live alongside people for whom a bowl of rice and a few vegetables a day is all that can be expected from life. I am simply suggesting that spending the limited amount of money available where it is most needed and where it will do the most good *in global terms* is itself not just a good idea, but actually involved in the justification for conserving birds at all.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

Studies of less familiar birds

179 Collared Flycatcher

H. Löhrl

Photographs by R. G. Carlson, H. Löhrl and A. N. H. Peach

Plates 1-4

The Collared Flycatcher *Ficedula albicollis* is a rare vagrant to Britain with only six accepted records, all since 1945, in Shetland (May 1947), Gwynedd (May 1957), Essex (September 1962), Orkney (May 1963), Cumbria (June 1964) and Norfolk (May 1969) (BOU 1971, Smith 1970). Five other records in Sussex during 1911-22 were rejected with the Hastings Rarities (Nicholson and Ferguson-Lees 1962). The species has featured previously in this series (*Brit. Birds*, 47: 302, plates 49-50, 52), but that was over 20 years ago and a number of studies have been published since then. Much of the information summarised here has been taken from the author's published papers on this species (particularly Löhrl 1951, 1954, 1957) and, where no references are given, these should be regarded as the source.

The Collared and Pied Flycatchers *F. hypoleuca* are siblings with a partly overlapping breeding range, though the Pied is found only sparsely within this area of overlap and, in general, the Collared has a more south-easterly distribution which is not continuous but comprised of many areas often isolated from each other. It breeds most commonly in Austria, southern Germany, Hungary, Czechoslovakia and southern Poland across to the Ukraine, but it also nests very locally in eastern France, southern Switzerland (one isolated area), Italy, Yugoslavia, northern Greece, Bulgaria, Romania, and Russia to Moscow; the most northerly population, completely isolated, is on the Swedish island of Gotland, in the Baltic (e.g. Brattström 1946).

The Collared Flycatcher is replaced in parts of Greece and Bulgaria, and in Asia Minor and the Caucasus east to Transcaspia and Iran, by the Half-collared Flycatcher *F. (a.) semitorquata*. This bird is morphologically intermediate between the other two and is often regarded as a race of the Collared, but Curio (1959) showed that its social behaviour, particularly during pair-formation ceremonies, differs conspicuously from that of both the Collared and the Pied and, for this reason, he gave it the rank of a full species; this conclusion is being increasingly accepted.

Like the Pied Flycatcher, the Collared is found mainly in broadleaved woodland, but in relatively warm climates, with a distinct preference for old oaks *Quercus*, and thus both in open

forest and well-timbered parks and avenues. Secondly, it also inhabits orchards, and gardens with fruit trees, though pairs which breed in such places return to the woods immediately the young have fledged; and in some areas it is found in conifers. In general, it is confined mainly to fairly low-lying districts and river valleys, as along the Danube, and it shuns situations above 600 metres. In south-west Germany, for example, the lower hills at 300-600 metres in the region of the Neckar river and its tributaries are thickly populated by Collared Flycatchers, while the lower parts of the Rhine valley at 200-250 metres, the higher hills between the Bodensee and the Schwäbische Alb at 700-1,000 metres (where the Collared goes up the valleys to about 600 metres) and the forests of the upper Rhine are inhabited exclusively by Pied (Löhrl 1965). Again, in Poland, Collared Flycatchers breed in numbers in the primeval forest of the Białowieża (Sokołowski 1958).

In breeding plumage, male Collared Flycatchers (plates 1a, 2a, 4b, 4c) are easy to distinguish from Pied (plate 1b), not only by the conspicuous white neck band, but also by a generally much larger white patch on the forehead and by a clear white area on the primaries, usually separated from the broad white wing bar above it. The greyish-white rump, often not visible in the field, is hardly necessary as an additional character. About half of all older males have a completely black tail (Löhrl 1954), without white on the outer feathers like the Pied; older males also have black primaries with the white area clearly larger and more sharply defined than that of the first-year males, which have much browner primaries. The male Half-collared Flycatcher is more like a Pied Flycatcher and quite likely to be overlooked as such, though it has a suggestion of a collar at the sides of the neck, and is intermediate between the other two species in the amount of white on the forehead and primaries and in its greyish rump; on the other hand, it shows more white at the sides of the tail than either of the others and this is a useful field mark.

Males in non-breeding plumage, females and juveniles are much more difficult, often impossible, to distinguish. Many female Collared Flycatchers (plates 2c, 4a) do, however, have the neck band visible as a light region of ruffled feathers and also show the white area on the primaries (plate 4a), though sometimes the latter is completely lacking (plate 2c); some females also have a white patch on the forehead. (A female Pied is shown for comparison on plate 2b.) The juveniles of both are speckled grey-white and often cannot be separated, but many young Collared, especially males, already show the white area on the primaries and have a more pronounced wing bar, as well as a hint of the neck band (plate 3b and compare with plate 3a).

The characteristic calls of the two species, heard when the birds are excited, are easily distinguished: the short 'bit bit' of the Pied becomes a long-drawn 'sieb' in the Collared. The songs are also clearly separable: the Collared's is slower, more drawled and of a different frequency. The remaining notes of the two species, however, particularly those used when mating and rearing young, are generally indistinguishable. This may be why, in areas where one species is much commoner than the other, interbreeding occasionally takes place, producing fertile hybrids (von Haartman and Löhrl 1950, Löhrl 1950b).

Male Collared Flycatchers begin a body moult from their non-descript winter plumage around February and return to their breeding areas from mid-April in the conspicuous and contrasted summer dress. There are occasionally a few first-year males among the early arrivals, but generally the older males predominate. The return takes place over four weeks or more and the later arrivals are mainly the young of the previous year. Like the Pied, the Collared nests in holes (plate 1a, etc.) and is not too particular in its choice of these. As most other hole-nesting species already have eggs by the time it arrives, it must often make do with bad and unprotected sites. Indeed, it occasionally breeds in very large holes, more suitable for Stock Doves *Columba oenas* or Tawny Owls *Strix aluco*. It also readily takes to boxes (plates 4a, 4b). If there is a choice, however, the Collared Flycatcher likes to nest at considerable heights, the preference being about 15 metres above the ground, and it is most reluctant to use low holes.

Again like Pied, Collared Flycatchers will often build their nests in a few hours on top of those of tits *Parus spp* at which the female is not yet incubating and so is seldom there: when the tit returns, she no longer finds her own nest but the flycatcher's, made of quite different materials. In this way occupation of the tit's nest comes about without a fight (Löhrl 1950a). In a fight a Collared Flycatcher is invariably defeated by either a Great Tit *P. major* or a Tree Sparrow *Passer montanus*. Indeed, if a flycatcher slips in to inspect a hole in which there is a nesting Great Tit, it is often killed.

The male chooses the nest hole, performing a display flight to the entrance and there uttering a characteristic call; the Pied Flycatcher shows the same behaviour. After he enters the hole, a subdued song can be heard coming from it. The female also enters, whereupon the male immediately leaves (Löhrl 1951). In areas where there are many holes, the male tends to select several and offer them in turn to the female; occasionally a male will offer up to five holes in this way. After pairing, the male at first confines himself to the chosen hole, but at the time of egg-laying he loses interest and begins to display again at other, empty holes. A second female may be



11-1. Male Collared Flycatcher
Ula albicollis by nest, Austria,
 1972; note white forehead, neck
 line, and patch on primaries—pages
 1-2. photo, R. G. Carlson. Inset,
 Pied *E. hypoleuca*, Cumbria, May
 photo, J. B. and S. Bottomley.







PLATES 2-3. Facing: top and lower right, male and female Collared Flycatchers *Ficedula albicollis*, Austria, June 1972 (photos: A. N. H. Peach; lower left, female Pied *F. hypoleuca*, Powys, May 1974 (photo: Graham F. Dale). The female Collared is greyer, often with a pale neck band of ruffled feathers (page 21). Above, Pied and, below, Collared in post-juvenile moult, Germany (photos: H. Lohrl); the latter individual has more white on the wing, but the diagnostic point is the white primary patch (often already present, especially in males





PLATE 4. Above, female and male Collared Flycatchers *Ficedula albicollis* at nest box, Germany (photos: H. Lohrl); this is a well-marked female with both neck band and white patch on primaries (cf plate 2c); the male has a beakful of caterpillars, with a blade of grass probably inadvertently picked up from the ground (page 24). Below, male, Austria, June 1972 (photo: R. G. Carlson)



attracted and the result is polygamy, especially in the case of older males. A polygamous male may then either feed the young of two broods or at first favour the earlier hatched one, later turning to the other.

The behaviour of polygamous males leads to other males not finding females during the courtship period and therefore remaining unmated. Such unmated males may then attempt to adopt the young of a neighbouring nest. If the male at this nest is a first-year bird and the unmated one is older, the latter and the nesting pair may jointly bring up the young, in which case the one-year-old is inferior at the nest hole and must wait until the older male has fed the young. Sometimes as many as three different males, as well as the female, can be seen entering a hole with food. Thus rarely does the second female of a polygamous male have to bring up the young alone or with only occasional participation by a male (Löhr 1949, 1959).

The nest is built entirely by the female, of dry grass, dead leaves, stalks and, in oak woods, sometimes of the fallen male flowers of the oak. It is lined with fine grass, not hair or feathers. The nests of Collared and Pied Flycatchers are inseparable, the eggs of both being uniform light blue. Clutch size depends on the time of laying: the earlier this begins, the more eggs are laid. In very warm springs, laying may start as early as the end of April and only then do clutches of eight eggs occur. In south-west Germany Collared Flycatchers lay an average of 5.8 eggs, this varying from 5.5 to 6.2 in different years (Löhr 1957). In Czechoslovakia an average of 5.7 eggs was recorded, with a figure of 5.8 for broadleaved woods significantly higher than one of 5.5 for coniferous areas (Balat 1971). In southern Poland the average was 6.1 eggs and during three years never fell below 6.0 (Głowaciński 1973).

Incubation generally starts with the penultimate egg and lasts for 13 days, though longer periods do occur. Fledging is also variable: in favourable weather and feeding conditions, the young leave the nest after 15 days, but at times of rain this period may be extended up to 18 days. The young do not always leave at the same time: it is not at all uncommon for part of the brood to leave the hole and be looked after by one of the parents, while the remaining young in the nest continue to be fed by the other. About six days after leaving the nest, the young start to take food for themselves; after ten days, at the latest, they are independent. After about three weeks, they begin their first moult; and they then usually migrate before the moult has finished. The adults begin to moult as soon as the young are independent, but in cases of late broods adults may be found in moult while still tending young in the nest.

In south-west Germany 90% of the eggs laid produced hatched

young and 77% fledged young, and in Czechoslovakia Balat (1971) recorded an even higher breeding success. It must be pointed out, however, that these success rates were achieved in nest boxes; in tree holes the figures would probably be significantly lower. Recent research in south-west Germany has also shown that nest losses are sometimes high in woods where there are Dormice *Glis glis*.

Male Collared Flycatchers usually return in the following spring to the previous year's territory, and females are also generally faithful to one locality. The young are probably even more strongly attached to their birthplace: this is shown by the way in which many first-year birds, returning late, have to be persistently and aggressively pursued by the superior, established, older males before they will leave the area. The greatest recorded age of a male Collared Flycatcher is six years, and of a female five years.

Like other flycatchers, the Collared Flycatcher does not only catch flies. The adults take both imagines and larvae of a variety of flying and wingless insects. The young are fed to a considerable extent on caterpillars (plate 4b): indeed, of 671 prey animals of early broods identified in south-west Germany, 32.5% were caterpillars, these forming 87% of the butterflies and moths (Lepidoptera) taken, which in turn amounted to 40% of the total food. For later broods, the percentage of caterpillars dropped quickly and the proportions of flies (Diptera) and ants (Hymenoptera) increased from 19% to 35% and from 11% to 21% respectively.

In orchard areas, Collared Flycatchers frequently take both caterpillars and other prey from the ground, though in doing so they drop down only momentarily. In tall, broadleaved woods, on the other hand, they seem never to descend to the ground in normal conditions, but only in bad weather or when there is a lack of food in the trees. This difference may be due to the height above ground of the lowest branches. In prolonged periods of rain, many young die even when there is a rich food supply: this is because few Collared Flycatchers appear to recognise motionless insects as prey.

There is a marked difference in the migration routes of Pied and Collared Flycatchers from the area of overlap in west-central Europe. The Pied pass mainly through Spain and Portugal to Africa, and the Collared exclusively through Italy (Löhrl 1958), though of course the east European populations of both species also migrate through the eastern Mediterranean. All recoveries of ringed Collared Flycatchers from Germany have been in Italy and two from Gotland have been found in Italy and Malta, while recoveries of German Pied Flycatchers have largely come from

Iberia. This dichotomy implies that, as Salomonsen (1955) suggested, the two species had separate breeding ranges in the Ice Age, the Pied being confined to south-west Europe and the Collared to south-east, and that they have met again only secondarily.

Collared Flycatchers leave the breeding areas early. From July they live silently in the canopies of tall trees and some south-west German birds even reach Italy during that month, though most recoveries there have been in August and some even as late as October. The winter quarters are still not well known, partly because of the difficulty of identification at that season, but from published observations they appear to extend farther south than those of the Pied, into Zambia, Malawi and southern Zaire. The only two ringing recoveries in Africa, of birds from Hungary and Gotland, have both been from south-west Zaire in early spring.

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A review of waterthrush identification with particular reference to the 1968 British record

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INTRODUCTION

Following the publication of my note on the second record of the Northern Waterthrush *Seiurus noveboracensis* in Britain (*Brit. Birds*, 65: 484-485), criticism of the identification came from G. J. Oreel in the Netherlands and Dr A. D. Brewer in Canada. Both suggested that the published details were insufficient in the light of a recent American study of the problems of waterthrush identification (Binford 1971). In particular, they considered the dismissal of the Louisiana Waterthrush *S. motacilla*, because of the bird's 'finely spotted throat', very unsafe. Further comments from Dr Brewer, B. K. MacKay and B. Zonfrillo showed beyond all doubt that field guide comparisons of the two species were dangerously incomplete. A full review was therefore undertaken by the Rarities Committee, aided by eight observers on both sides of the North Atlantic, the British Museum (Natural History) and, most importantly, lengthy study of Binford's conclusions. Unfortunately unanimity of opinion has not been achieved on the identification of the 1968 record but the reasons why the Rarities Committee continues to accept it as a Northern Waterthrush are detailed in an appendix.

WATERTHRUSH IDENTIFICATION IN THE FIELD

Binford (1971) demonstrates that the compression of waterthrush characters into one plate and a few text comments in all current field guides and even some handbooks promotes a facile approach to the separation of the two species. For example, Robbins *et al.* (1966) state that 'Northern is separated from Louisiana by its streaked throat and smaller bill'. In fact both these characters are subject to overlap (and the risks of varying visual acuity or judgement). Neither can now be regarded as diagnostic. Other characters suffer from similar confusion. There follows a précis of Binford's all important analyses and where relevant the comments of other expert observers.

General character: No differences in general character are evident. Both waterthrushes exhibit horizontal posture, furtive movements—most characterised by a teetering walk that recalls the Common Sandpiper *Tringa hypoleucos*—and skulking behaviour.

Size: Louisianas average larger than Northerns but all measurements overlap. The only useful character is bill size, which in Louisianas appears large and robust in relation to head and total

bulk. It is much less obvious in Northern, being in scale with the rest of the bird. Nevertheless Binford and Dr Brewer *et al.* warn of overlap and consider bill size to be only 'a minor aid to field identification'.

Colour of supercilium: This is often described for Louisianas as pure white overall, but Binford notes that the forepart (from bill to eye) is 'always washed with grayish-olive or grayish-buff'. Dr Brewer has also shown that in about 20% of Louisianas some faint buff marks are visible on the rear part (from eye to nape). These do not mask the strikingly white ground colour which, when unmarked as in most birds, is diagnostic. In Northern the colour of the supercilium is 'usually buffy-yellow', though in some (particularly western) birds in worn spring and summer plumage it may be 'so white as to be inseparable from *motacilla*'. Binford concludes that 'any bird in which [the rear supercilium] is yellowish or buffy must be a Northern'. Dr Brewer's findings require the colour to be *uniform* for such a rule to stand.

Shape of supercilium: Binford, working mainly from skins, does not comment on this but it has become evident that there are differences between the two species. In Louisianas supercilia are very striking, not only in their normal whiteness but also in their width, particularly behind the eye. In Northern supercilia are striking but their width is uniform overall and narrower. This difference is indicated in all plates in current literature and it is used by American field ornithologists to separate the two species. It immediately caught the eye of P. J. Grant, who was reminded of the similar difference between the superciliary tones and shapes of the Moustached and Sedge Warblers *Acrocephalus melanopogon* and *A. schoenobaenus*.

Underpart markings: The spots and streaks on Louisiana underparts are 'usually paler (more brownish or grayish and less blackish)' and more diffuse than those on Northern. Binford stresses that this difference can be masked by the strength and tone of ground colour and that again there is a small overlap in mark intensity. He considers that this character is only 'an additional minor aid' in identification.

Throat colour and markings: Louisianas always have throats coloured 'pure, gleaming white'. Only in a few Northern does this occur; Dr Brewer found such (combined with a lack of spots) in only one in 452 that he recently examined. In most Northern the ground colour of the throat is 'yellowish or off-white'.

Throat spots (not streaks) are variably present in both species. Some Louisianas have larger and better defined spots than some Northern. Binford demonstrates the invalidity of earlier statements on this character with a striking photograph and Dr Brewer has fully confirmed a dangerous overlap between the two species. Thus,

far from being the clincher in field diagnosis, the distribution of throat markings has now been reduced to only 'a percentage field character'. Identifications can no longer be based upon it. This said, W. Russell has opined that there is a useful field character in the *pattern* of marks *across* the lower throat and upper chest. If there are many sharp spots noticeably clustered there, the conspicuous collar or gorgette so formed is indicative of Northern.

Flank ground and undertail covert colour: In Louisianas this is 'clean pale [to] ochraceous buff', 'pale cinnamon or fawn' and is 'usually rather bright, often very bright'. Binford has never failed to detect such tones in the field since they stand out as a noticeable patch against the whitish ground colour of the rest of the underparts. In Northern such patches are rarely visible since the underparts usually show a uniformly 'yellowish', 'lemon yellow' or 'nearly white' ground colour. At one point in his paper, Binford chooses this character as 'by far the best field mark' for separating the two species, but in his conclusions he links it with the colour of the rear supercilium. In the often difficult circumstances of waterthrush observation, judging the ground colour of heavily streaked underparts is, however, not easy and Dr Brewer stresses that the absence of a buff flank patch does not exclude Louisiana. Unlike Binford, he has also detected a yellowish tone in the flank ground colour of that species. Once again there appears to be a dangerous overlap.

Calls: Binford doubts that any but the most experienced waterthrush observers will be able to distinguish the 'somewhat louder, sharper, more emphatic and more penetrating' calls of Louisianas.

Clearly it is not sensible to quarrel (from this side of the North Atlantic) with any of the cautions given by Binford on waterthrush identification. I sense however that there is a residue of confusion and that there is a risk of parts obscuring the whole of field identification. P. J. Grant, the only member of the Rarities Committee to have seen both species recently, feels that the separate debating of the various characters in Binford's paper and elsewhere may exaggerate the problem of separation for European observers used, for example, to the difficult identifications posed by the genus *Phylloscopus*. To give a clearer impression of the appearance of the two species in typical plumage, fig. 1 has been drawn using illustrations, photographs and field sketches as references.

WATERTHRUSH IDENTIFICATION IN THE HAND

Binford gives a table of measurements which show that the wings of male Northern did not exceed 79.1 mm and those of females reached only 77.4 mm. The longest bills were respectively 10.5 mm and 10.7 mm. He found overlaps with all these measurements in small Louisianas but larger males and females of that species had

dim. wallace 1975

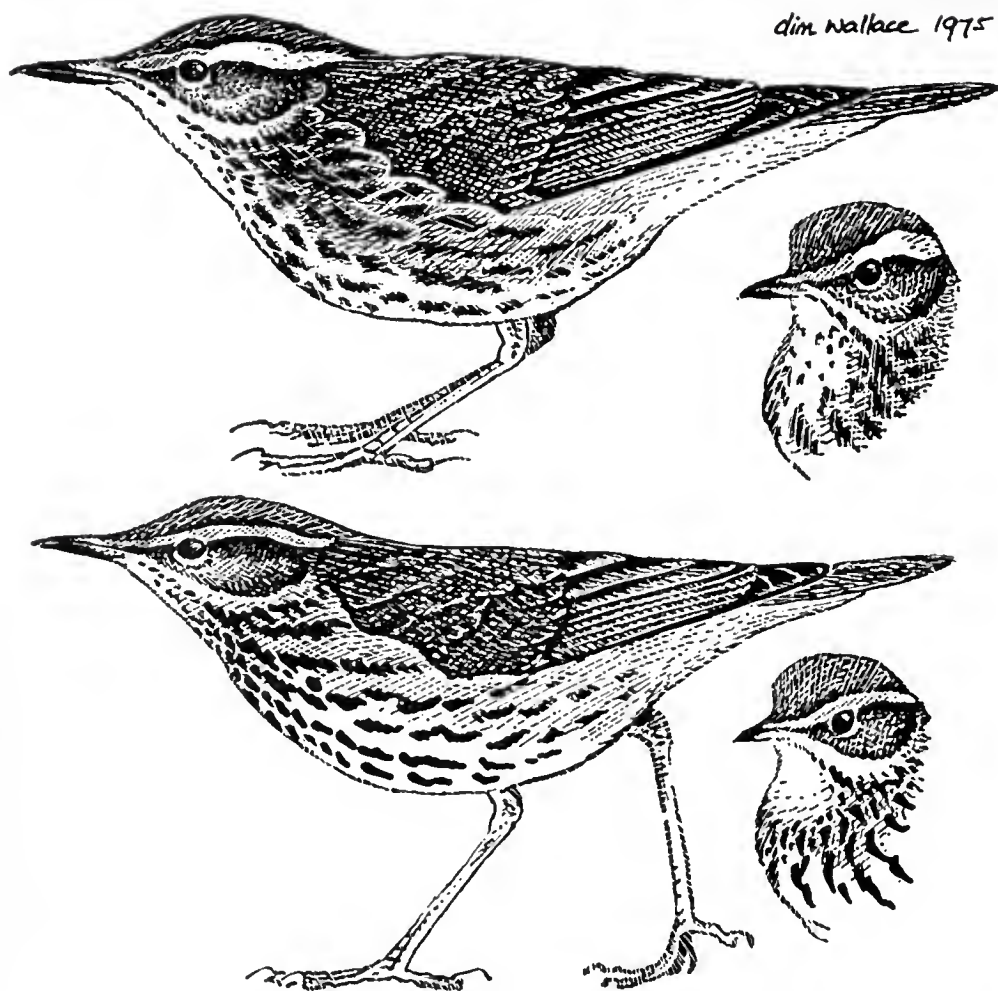


Fig. 1. The two species of waterthrush *Seiurus* spp. Upper (full figure), typical Louisiana *S. motacilla*; (inset) head of variant Louisiana, showing occasional throat pattern like that of other species. Lower (full figure), typical Northern *S. noveboracensis*; (inset) head of variant Northern, showing rare throat pattern like that of Louisiana. See text for fuller discussion (drawings by D. I. M. Wallace)

wing lengths reaching 82.8 mm and 80.5 mm respectively, and bills reaching 12.2 mm and 11.2 mm respectively. It should be noted that the bill (culmen) measurements were taken from the tip to the front of the nostril, and that the number of specimens was low (from five to 27 in each species \times sex).

In the hand the colour pattern of the vent and undertail coverts is diagnostic. In the Northerns all these feathers are invariably marked with a 'grayish-brown sagittate mark between the whitish tip and the filamentous dark gray base'. In Louisianas the small feathers are 'always immaculate' and such marks that are present on any are irregular and discontinuous with the dark base. Binford does not allow earlier claims that the colour of the axillaries or the

concealed coronal patch assists waterthrush identification. He also doubts Peterson's (1947) description of Louisianas as greyer birds than Northerns.

OTHER CONSIDERATIONS

Two other points are worthy of comment. Firstly there is the origin of vagrant waterthrushes (and the likelihood of their crossing the Atlantic in mid-autumn). Both Dr Brewer and W. Russell have commented on this and, to quote the latter directly, the Louisiana is 'a lousy candidate for a vagrant to Britain'. Its breeding range in the east Nearctic only just reaches Canada (in Ontario) and significantly it both enters and leaves the northern part ahead of its congener. In autumn it is rare after mid-August and it is virtually unrecorded at coastal ringing stations in September and October. In distinct contrast, the Northern is known to have crossed the North Atlantic thrice (in 1955, 1958 and 1968). Its breeding range extends over much higher latitudes and throughout Canada except the central North. Its autumn migration is protracted and quite compatible with equinoxial vagrancy. Thus, although Dr Brewer quite rightly points to the possibility of a southerly origin for a Louisiana (quoting the occurrence of a Hooded Warbler *Wilsonia citrina* in the Isles of Scilly as a telling analogy), the balance of probabilities indicates that Northerns are the more likely vagrants to western Europe. Secondly there is the question of habitat. While nobody disputes that migrant and vagrant waterthrushes must feed where they can, the two species do exhibit partly different preferences in both breeding and wintering habitat (Godfrey 1966, Lack and Lack 1973). Louisianas normally inhabit higher, dryer ground with fast-flowing streams. Northerns normally frequent lower, wetter levels with standing water.

CONCLUSIONS AND SUMMARY

Waterthrush identification is much more difficult than most current literature indicates. It appears that observers faced with a waterthrush (particularly a pale one) should concentrate on bill size in relation to head, the colour of the rear supercilium, the shape of the supercilium, throat markings and the ground colour of the flanks. If, respectively, these are large, white, deep, diffuse and obviously buff, the bird is a typical Louisiana. If they are unexceptional, tinged uniformly yellowish or buff, uniform (and narrow), sharp (and forming a collar) and lemon-yellow, it is a typical Northern. However, many variants occur and, in their case, most hope is afforded by the closest possible observation of bill and supercilium, particularly the latter's shape. The previously accepted best character (throat markings) is untrustworthy. In the hand, the

pattern of marks on the greater undertail coverts is diagnostic.

The balance of probabilities indicates that the Northern is a far more likely candidate for trans-Atlantic vagrancy on grounds of both its more northerly breeding range in the eastern Nearctic and its protracted autumn migration period.

ACKNOWLEDGEMENTS

The preparation of this paper would have been impossible but for the willing help of Dr A. D. Brewer, who has performed a useful service to the Rarities Committee in bringing L. C. Binford's study to its attention. In its completion, I have also been assisted by P. F. Bonham, P. J. Grant, D. Goodwin and W. Russell. I thank them all.

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Appendix. Further notes on the Northern Waterthrush on Tresco, Isles of Scilly, 3rd to 9th October 1968

The identification of the Tresco waterthrush has been hotly disputed for over two years. Canadian criticism, marshalled by Dr A. D. Brewer, forced two recirculations, and in the course of these the record has also been reviewed by D. Goodwin, W. Russell and Davis Finch. In March 1975, the Rarities Committee accepted it for the third and final time. The following notes explain their decision and add certain facts to the rather brief description published in 1973:

General appearance and racial attribution: Even allowing for the deep shade of its habitat, the Tresco bird was unusually pale or white for a Northern Waterthrush. So struck were D. B. Hunt and I by its paleness and its similarity to the 'pale race' depicted by A. Singer in Robbins *et al.* (1966) that we tentatively assigned it to that (western) race, so called *notabilis*. This was an injudicious act, not only because of the problems of variant plumages discussed in the preceding paper but also because of the continuing confusion over waterthrush systematics (Godfrey 1966 *cf* Eaton 1957). How an apparently pale bird got to Tresco remains a most trying puzzle, since both Dr Brewer and W. Russell make it clear that the incidence of such morphs in coastal north-east America is almost infinitesimal.

Bill size: The primary reason for the dashed hopes of the Tresco bird being a Louisiana was the joint judgement of D. B. Hunt and myself that the bill was unexceptional in size. R. J. Johns came to the same conclusion in an independent observation.

Supercilium colour and shape: All four observers who submitted notes during the review, and the Rarities Committee, judge that the compound of these characters in the Tresco bird is compatible only with a Northern. Following Binford's

analysis, a Louisiana is totally excluded. The supercilium colour was noted as 'yellowish' (by two observers), 'buffish' or 'whitish-buff' and it appeared uniform in tone. The supercilium shape as drawn by myself and noted independently by R. J. Johns was considered by W. Russell as 'specifically . . . indicative' of Northern.

Throat markings: As drawn, the pattern on the chin and upper throat is typical of more than 50% of Louisianas, as assessed by Dr Brewer, but its presence does not exclude the other species. Indeed the bird appeared more heavily marked than the typical Northern illustrated by Binford, and Dr Brewer himself found eight matching Northerns in a sample of 452 skins. Importantly, W. Russell commented without prompting that the clustered appearance of the lower throat markings was again indicative of Northern.

Flank ground colour: The lack of strikingly buff flanks is incompatible with most Louisianas.

Colour of vent and undertail coverts: One coloured drawing shows this coloured with pale 'yellowish-buff' but it often looks just white. King (1973) noted it as 'dull dirty white'. It is doubtful if either record of a plumage area so 'difficult to observe' (Binford) is certain.

Of six disputed or puzzling characters on the Tresco bird, two (general paleness and vent and undertail coverts colour) cannot be argued to a conclusion; three (bill size, lower throat pattern and flank ground colour) favour Northern; one (supercilium colour and shape) is diagnostic of Northern; and only the upper throat colour and spot pattern favour Louisiana, and are not exclusive of Northern. It is this balance of conclusions that forms the basis of the continued acceptance of the record.

(For help in the second and third submissions of the record, I am grateful to P. H. Dukes, D. B. Hunt, B. King and R. J. Johns. For assistance in the evaluation of all notes and drawings and the criticisms of Dr Brewer, B. K. MacKay and B. Zonfrillo, I thank D. Goodwin, P. J. Grant, Davis Finch and W. Russell. The Rarities Committee also acknowledges much assistance from the last seven.)

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Notes

Association between male North American Ruddy Ducks and stray ducklings On 21st May 1960, at Chew Valley Lake, Avon, I saw a female North American Ruddy Duck *Oxyura jamaicensis* emerge from the reeds with two ducklings less than a week old. It may have been the first recorded breeding of the species in the wild in Britain. Thereafter Ruddy Ducks sporadically bred at Chew Valley and one or two broods were occasionally seen in summer. I also sometimes came across a single duckling, no more than a day or so old, and usually well away from cover on the open water. These odd ducklings would readily dive when gulls flew closely overhead, but always seemed agitated as they swam quickly to and fro. At first I assumed that they had temporarily become separated from a brood and parents somewhere in the vicinity. However, one day while watching one of these small ducklings I noticed a drake Ruddy Duck appear from the reeds, swim towards the stray and, without any of the elaborate display so characteristic of the males, escort it into cover. The association was readily accepted by the young bird and I sporadically saw them together when they appeared in the open. Subsequently I noticed the behaviour many times, and the drake would fuss around the stray ducklings and seemed to remain in their company for long periods; in fact, once the bond had been established I never witnessed its dissociation, though it must have taken place because I never came across a drake in company with a duckling more than two or three weeks old. Similar associations between odd ducklings and female Ruddy Ducks were never witnessed; indeed, there were occasions when females with or without broods vigorously drove away the stray and so let it fend for itself.

The above observations perhaps suggest that these single ducklings had been incubated by species of other waterbirds when odd eggs had been laid in their nests. A. C. Bent (1962, *Life Histories of North American Wild Fowl*) has mentioned Ruddy Ducks frequently laying eggs in nests of other ducks and grebes. Furthermore, a related South American species, *Heteronetta*, is completely parasitic. Dr Janet Kear of the Wildfowl Trust, Slimbridge, Gloucestershire, feels that my explanation accounting for these stray ducklings at Chew Valley is reasonable, though there are many records of males accompanying broods in the early stages or throughout the fledging period (F. H. Kortright, 1942, *The Ducks, Geese and Swans of North America*; Bent 1962).

BERNARD KING

Gull Cry, 9 Park Road, Newlyn, Cornwall

Long-tailed Tit feeding young Great Tits In 1971 and 1972 a pair of Great Tits *Parus major* nested in an old hollow apple tree in

a large orchard at my home in Milnthorpe, Cumbria. On 21st May 1972, when the nest contained four well-grown young, I noticed that not only were the two Great Tits feeding the nestlings but a Long-tailed Tit *Aegithalos caudatus* was also entering the hole with food. Thereafter I saw the Long-tailed Tit feed the Great Tit young daily until they fledged on 28th May. The Long-tailed Tit, which I sometimes observed collecting insects and moth larvae in nearby trees, fed less frequently than the Great Tits; on the evening of 24th May, for example, it made only one visit to the Great Tits' three, and during a 50-minute watch on 25th May I saw it feed the Great Tit young only twice.

CYRIL SCOTT

Thornfell, Carr Bank, Milnthorpe, Cumbria

Long-tailed Tits feeding on lawns From 1st to 21st January 1975, a flock of Long-tailed Tits *Aegithalos caudatus*, varying in numbers from nine to 16 birds, fed persistently on the lawns around my house at Blackboys, East Sussex. Sometimes the flock settled as far as 40 metres from the nearest flower bed or shrubbery, staying on the grass for upwards of 20 minutes. This behaviour was frequently observed at dusk just before the birds went to roost but also occurred at other times of the day. Although I watched the birds closely with binoculars at distances down to three metres, I was unable to identify the food taken, though I assumed it to be small invertebrates. As each bird fed at an average rate of every four seconds, the bobbing tails of the flock presented an attractively animated appearance.

GUY MOUNTFORT

Plovers Meadow, Possingworth Park, Blackboys, East Sussex TN22 5NA

Long-tailed Tits feeding on white bread crumbs On 1st February 1975 I visited a car park in a woodland area near Cottingham, Humberside, which, as it is used by local people as a bird-feeding area, attracts a good number of tits, finches and thrushes. I was surprised to see a party of seven Long-tailed Tits *Aegithalos caudatus* at a pile of white bread crumbs on the ground. The birds fed on the crumbs for more than 15 minutes before flying into the surrounding trees. Bags of suet hanging nearby were ignored, though numerous Blue Tits *Parus caeruleus* and Great Tits *P. major* fed from them.

CHRISTOPHER WRIGHT

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It is sometimes stated that Long-tailed Tits rarely feed on the ground and come to bird tables only occasionally in hard weather. Such behaviour has, in fact, been fairly frequently recorded in the Garden Bird Feeding Survey organised by the British Trust for Ornithology, though this is not yet widely appreciated. Eds

Multiple nests of Spotted Flycatcher Since 1972 I have kept records of the nesting activities of Spotted Flycatchers *Muscicapa striata* at my home near Okehampton, Devon. The nest site is a ledge at the head of a doorway in the wall of an old barn which is used as a garage. The ledge is about 5 cm wide and when the doors, which open outwards, are shut their tops form a parapet, about 3 cm high, at the front of the ledge. In 1972 a pair of Spotted Flycatchers attempted to build on the ledge but, owing to regular use of the garage, they eventually abandoned the site and moved elsewhere. The garage was not used during the 1973 breeding season and a pair again began to build on the ledge. The birds simultaneously built two nests at the right-hand end of the ledge; both nests, which were just touching, were complete and fully lined. One nest was apparently used for roosting and the other contained a clutch of four eggs which was completed by 11th June but was unfortunately predated three days later. Both nests disintegrated during the winter and the remains were removed.

Soon after 13th May 1974, when the first Spotted Flycatcher was seen, a pair started building a nest in the usual place at the right-hand end of the ledge. A few days later there were two nests, then three and finally, by 26th May, a row of four complete nests, all touching and built in sequence from right to left. All but the first nest were fully lined. Laying began on 29th May in the second nest from the left and continued in that nest until a clutch of four was completed by 4th June. On 1st June, however, a single egg was also laid in the end nest on the left but this was deserted thereafter. The full clutch had hatched by 15th June and fledged on 28th. Despite the apparent abundance of nests available to them, the same pair began their second brood in a new nest built some distance away in some ivy on the main house.

Two of the nests used in 1974 fell down during the following winter. The birds returned on 16th May 1975, repaired the two remaining nests and built two more alongside. As in the previous year all four nests were completed and just touched each other, three were fully lined, and one of the old nests unlined. Five eggs were laid in the third nest from the left (one of the 1974 nests) and four young fledged. Shortly afterwards the pair built another nest, in a pear tree about 8 metres away, and successfully fledged a second brood of four.

CHRISTINE A. MARTIN

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Reviews

Watching Birds. By James Fisher, revised edition by Jim Flegg. T. & A. D. Poyser, Berkhamsted, 1974. 159 pages; 14 black-and-white photographs, line illustrations. £2.80.

Many birdwatchers have been guided in their first steps in ornithology by James Fisher's book *Watching Birds*. All will have kept this charming little book at heart, and will surely welcome the revised reprint that has been edited by Jim Flegg. James Fisher first published his book in 1941, when he acted as secretary to the British Trust for Ornithology, so it seems most fitting that the last director of the BTO should have undertaken the revision. A considerable part of the success of the Trust in its early days was due to the impact of *Watching Birds* with its healthily practical approach to the subject.

Jim Flegg modestly states in his Preface that he has only up-dated the book, but in scanning its pages one soon discovers that he has had to rewrite several chapters entirely. The original author could not have foreseen the enormous development in 'the tools of bird-watching' and the sophistication of some of the present-day equipment. Nor would he have imagined that the number of birds ringed per year should rise from 50,000 to over half a million, presenting us with a far more detailed knowledge of migration. Census work has grown from accurate figures for a very few species and rough estimates for the rest to a sensitive tool monitoring the quality of Britain's environment for its birdlife. On the other hand, though adding much information of recent date (admittedly generally well known to keen birdwatchers), the reviser has maintained the organisation of the book as he found it. Today it would be considered old-fashioned to start a book on *watching* birds with a description of internal anatomy, but it adds to the charm of nostalgia which surrounds the re-issue of a classic. However, this is no excuse for retaining some of the few mistakes of the original text, e.g. the suggested direct attachment of the shoulder blades to the breast-bone, or the curious remark that the Fulmar strays further south in summer than in winter. Nor does it seem true that the primaries are of only slight importance in propulsion. A new mistake is the illustration representing the bird's knee at its ankle, making one wonder how it manages to get its centre of gravity at that level.

Jim Flegg has succeeded admirably in blending his own writing with James Fisher's. In many cases one has to refer to the original edition to see who was responsible for a particular statement. Almost all the illustrations have been drawn anew, the little vignettes by Crispin Fisher adding considerably to the visual appeal of the book. The whole is attractively produced. JAN WATTEL

A Field Guide to the Nests, Eggs and Nestlings of British and European Birds. By Colin Harrison. Collins, London, 1975. 432 pages; 64 colour plates; many line drawings. £3.50.

The Pocket Encyclopedia of Birds' Eggs and Nesting Habitats. By Siegfried Hoehner. Blandford Press, London, 1974. 194 pages; 32 colour plates. £1.60.

Die Eier der Vögel Europas. Volume 1. By Wolfgang Makatsch. Neumann Verlag, Radebeul, D.D.R., 1974. 468 pages; 67 colour plates; over 400 black-and-white photographs; over 200 maps. 96 (East German) Marks.

The fascination of birds' eggs will never die. The element in our society which wants to destroy the life contained in them and place the empty and useless shell in a cabinet may be declining but these three books are clear evidence that general interest continues. All place some emphasis on the whole breeding cycle, including the nest and the chick, but the dominance of the egg remains.

Dr Colin Harrison has produced a companion volume to *The Birds of Britain and Europe, with North Africa and the Middle East*, by Heinzel, Fitter and Parslow (Collins 1972). It covers the same geographical area and gives an account of the nesting habits of the 588 species that breed therein. Approximately 250 words are devoted to each species, describing the habitat and nest site, the nest itself, the egg and the nestling, plus breeding season, clutch size, incubation and nestling periods. The last term covers the development of the young and the care given it by the parents. Philip Burton has contributed 16 colour plates of the young of 145 species, and there are 48 plates of colour photographs of eggs.

There is a good introduction to the book and a brief but usable key. The text information is necessarily written in an abbreviated style but is very clear. It is a pity that diagrams showing the breeding season of each species could not have been given as this is easily the weakest section of the book. It is confined to an imprecise statement of when breeding begins. Dipping into the text of the species I know best it is apparent that there has been heavy reliance on the standard reference works with perhaps less literature searching than might have been expected. For example the incubation and fledging periods of Cory's Shearwater are cited as unknown but were in fact given in a paper published four years ago, and there are other similar examples. All three swans are described as carrying their young on their backs whereas only the Mute Swan does this. There is also frequent ambiguous use of the word 'independent' which is used to signify both fledging and independence from the parents, which are by no means coincident.

The plates are of high standard, especially the paintings by Philip

Burton. For identification purposes it would perhaps have been better to have placed the downy waterfowl in swimming rather than standing postures and, in my copy at least, the plates of young waders are very pale, but the overall effect is excellent. The colour photographs of the eggs are also good. The line drawings of nests and incubating birds are less successful.

Both this book and the one by Siegfried Hoehner contain the usual statements about the legal position in Britain regarding disturbance to birds' nests. One doubts whether either will have any more effect than the loose wording of the 1967 Protection of Birds Act.

The book by Hoehner is yet another example of a foreign book on birds being translated into English, roughly adapted to fit a British market, and published for the sole apparent reason that the colour plates are available and therefore cheap. Thus the blurb, more honest than most, states that the book describes: 'the breeding habits of 280 species which nest in the British Isles *and/or* central Europe' (my italics). This says all that is needed about the species covered. Thirty pages are taken up with a rather complicated guide to nest and egg identification. The species accounts are even more abbreviated than in Harrison's book, but in the main accurate. The colour plates are principally of nests, supplemented with some of eggs alone. In comparison with Harrison's book, this one is of little use to anyone living either in Britain or thinking of travelling to central Europe.

The third book is very different from the others. It is the first of two volumes that will cover all European breeding birds. Despite the title, the coverage is of the entire breeding cycle with paragraphs on the breeding habitat, nest site and nest, clutch size, incubation and fledging periods, and season. However the largest section under each species is devoted to between one and eight sets of egg measurements and weights, giving means, ranges and sample sizes. The author's own data makes a sizable contribution to this, plus material culled from many other sources. Such data has fairly limited value, and indeed interest, and it may be for this reason that rather than publish a dry catalogue of figures, as is being done by Schönwetter in his *Handbuch der Oologie* (Akademie-Verlag, Berlin, 1967 *et seq.*), Makatsch has added the other breeding biology data, together with a breeding distribution map and between one and four black-and-white photographs of each species. This amount of illustration, and the generous format, make it an attractive book, and although it is in German, only a limited knowledge of that language is required in order to extract information from the text. The latter seems quite accurate and is much fuller than in either of the two English-language books reviewed here. The maps contain a number of strange errors and should not be relied upon.

M. A. OGILVIE

Request for information

BTO Garden Bird Feeding Survey This survey is checking each winter the species, numbers and food preferences of those birds coming to gardens to take foodstuffs artificially presented (natural foods such as berries on shrubs are omitted). A countrywide sample of 200 varied feeding stations is watched. New participants are not required but observations are welcomed from anybody on the numbers, dates and feeding habits of rare or unusual garden feeders, e.g. Water Rail *Rallus aquaticus*, Lesser Spotted Woodpecker *Dendrocopos minor*, Treecreeper *Certhia familiaris*, Garden Warbler *Sylvia borin*, Firecrest *Regulus ignicapillus*, Hawfinch *Coccothraustes coccothraustes*. Notes are also welcomed on hawks, falcons, owls and shrikes coming to scavenge food or to chase birds in the feeding area. All records will be gratefully received by **David Glue, Populations Section, British Trust for Ornithology, Beech Grove, Tring, Hertfordshire HP23 5NR.**

News and comment—New author

This feature was started in 1963 by R. P. Cordero, who three years later was compelled by the pressure of his activities to relinquish it to J. L. F. Parslow, who, in turn, on his appointment to the Nature Conservancy, handed over to Robert Hudson in March 1968. Robert Hudson, who faces many other pressures, has now asked to be relieved. We are especially grateful to him, not only for bearing the considerable burden of preparing this feature for over seven years, but also for maintaining throughout such a high level of interesting news items and incisive comment. We are pleased that Peter Conder, who has recently retired as Director of the Royal Society for the Protection of Birds, has agreed to take over. He would welcome news items of ornithological or conservation interest, which should be sent to: Peter Conder, Old Orchard Close, 12 Swaynes Lane, Cambridge CB3 7EF. EDS

News and comment *Robert Hudson*

Nightingale census The British Trust for Ornithology has announced (*BTO News* no. 76) that an attempt is to be made in 1976 to make a first full census of the Nightingale. This attempt to cover the species' entire range in southern Britain will be based on surveys of tetrads (2 × 2 km squares of the National Grid) visited in May and early June. Observers will be asked to record six-figure grid references of all singing Nightingales; and the opportunity may be taken to cover other nocturnal species as well. The organiser, Maurice Davenport, is setting up a network of regional organisers who will be named later.

Council of Europe on conservation The Council of Europe's European Committee for the Conservation of Nature and Natural Resources held its 14th annual session in Strasbourg in November. The conclusions of its sub-committees were all accepted and will be forwarded to the Committee of Ministers. The European Diploma (awarded to outstanding safeguarded areas of natural beauty) was recommended for the Pyrénées and La Vanoise National Parks in France and the Kusecneti National Park in Turkey. Under the heading of natural environments in danger, resolutions on hedgerow landscapes and on the Mediterranean maquis were adopted; and the Committee also gave active support to a plan to work out a European legal instrument on the conservation of flora, fauna and natural habitats, a subject to be discussed further at the second European Ministerial Conference on the Environment (to be held in Brussels in March). The Committee also approved a draft resolution on the setting up of a European network of 'biogenetic reserves' by which it is hoped to safeguard representative samples of various typical European biotopes. (*Council of Europe Newsletter* 75-11.)

Oil again During the early morning of 12th November 1975, the 219,913 ton dwt Onassis supertanker *Olympic Alliance* turned to starboard when she encountered two vessels sailing the wrong way in the northbound traffic lane through the Straits of Dover, and was struck squarely amidships by the frigate HMS *Achilles* coming up behind her. Fortunately, the first part of the 10,000 tons of oil in the damaged tanker was blown ashore smartly around Folkestone by southerly winds ahead of an approaching front, and only about 150 birds were killed, though there is little news of what happened to the rest of the cargo before the tanker was finally allowed into Wilhelmshaven five days later. During the evening of 12th November the Royal Fleet Auxiliary *Olna* also apparently lost what was at first said to be a few hundred gallons of fuel oil at Invergordon on the Cromarty Firth, and the crew tried to clear it up themselves with detergent. Two days after a successful cleaning operation had been announced, and everyone had gone home for the weekend, birdwatchers noticed oil coming ashore at the Nigg Bay SSSI further down the Firth; as the wind backed through west to north over that weekend, both sides of this bay and the Udale Bay SSSI on the other side of the Firth were plastered with it. Three to four thousand waterfowl and waders are said to have been affected, though apparently rather few of their bodies have been found. The first of these incidents illustrates the need for more official action to deal with leaking tankers, and the second for more to deal with spilt oil. This is apparently at least the sixth time that the Royal Navy has spilt oil in the Cromarty Firth in recent years, though, as the inhabitants of Kent will now presumably also discover, they still remain exempt from pollution control legislation. It seems time that our drowsy civil authorities arranged for them to be kept under permanent surveillance. (Contributed by Dr W. R. P. Bourne.)

Dutch Elm Disease In recent years Dutch Elm Disease has been wreaking havoc among elm trees in the British countryside; and a recent Forestry Commission report shows that there is no sign of the outbreak abating. Aided by the hot summer, a further 1.9 million elms became afflicted in 1975, and 6.5 million elms have now been killed, which is perhaps 25 % of the total. As a consequence, the pastoral landscape is changing rapidly, and fears are being expressed whether the elm can survive in Britain. While the disease may in the short term benefit insectivorous birds which occupy the tree-bark feeding niche (such as woodpeckers and the Treecreeper), birds which use elms as nesting sites (e.g. Kestrel, Tawny and Little Owls, and Rook) are likely to be faced with problems.

New BTO journal For several years the BTO's Ringing and Migration Committee and ringers at large have been discussing the possibilities of producing a

new journal to cover their special field of interest; *Bird Study*, the Trust's main journal, attracts a wide range of papers and thus has a long waiting list. These discussions reached fruition, and the first number of *Ringling and Migration* has just appeared. This is a 64-page issue, and contains papers on migration, weights, moult, chick survival, feeding behaviour, longevity, and abstracts of over 100 papers that have appeared in local ringing publications. This first issue is available, price £1, from the BTO, Beech Grove, Tring, Hertfordshire HP23 5NR; at present, annual publication is planned.

Bird photography Dennis Avon and Tony Tilford have co-authored a new book, *Birds of Britain & Europe in Colour*, published by Blandford Press (Poole, Dorset) at £3.25. This deals with 100 familiar species, each having a short text, a world distribution map and one or two colour photographs; the latter are excellent, and undoubtedly are this book's main attraction. The introduction refers delicately to some of these photographs having been taken 'under controlled conditions'. In practice, this relates to the photographing of a trapped bird in a special 'studio cage', which has previously been decked out with vegetation and a photographic background simulating a suitable habitat for the species concerned. The bird is held for only a short period, being released when the required photograph has been taken. There is no doubt that this method can produce pleasing results, as this book shows, though the technique is strongly disapproved of by advocates of the conventional school, which believes that birds should be photographed while at liberty. It remains to be seen whether this type of studio photography will prove acceptable, for it is understood that the Nature Conservancy Council is of the opinion that it contravenes the 1954 and 1967 Protection of Birds Acts. Under these Acts, wild birds can be trapped only for scientific purposes such as ringing, and only then by people holding a special licence; studio photography for its own sake hardly falls within the realms of science, though there is a difficult area when birds are caught for scientific purposes and photographed before release.

New Year Honours It was with much pleasure that we saw in the New Year Honours list that two distinguished ornithologists, Peter Conder and Dr Bruce Campbell, had been awarded the OBE. Peter has recently relinquished the onerous position of Director of the RSPB, which he guided through a period of great expansion and to an influential position in the British conservation movement generally. Bruce received his award on retirement as Chairman of the Berkshire, Buckinghamshire and Oxfordshire Naturalists' Trust; but he has been a key figure in British ornithology for many years, and will long be remembered for the valuable work he did as Secretary to the BTO. We offer our congratulations to both.

Over and out Sadly, this will be my last 'News and comment'. I have enjoyed my stint, but now, alas, pressure of other work has compelled me to stand down. An announcement concerning my successor is made elsewhere in this issue. I cannot sign off without thanking the many organisations and individuals who have supplied me with information over the years; and in particular I am grateful to the Nature Conservancy Council, the British Trust for Ornithology, the Royal Society for the Protection of Birds, and (in private capacity) Dr W. R. P. Bourne, all of whom have been especially helpful. I can depart knowing the 'News and comment' is in good hands, and I wish my successor well.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

Breeding season summary *D. A. Christie*

These are largely unchecked reports, not authenticated records

As in 1974 (*Brit. Birds*, 68: 51), exceptionally early breeding by **Great Crested Grebes** *Podiceps cristatus* was reported: at Weston Turville Reservoir (Hertfordshire) apparent incubation was observed on 19th January and sitting birds were noted on two nests on 26th, and with one egg hatched on 7th February laying must have taken place about 10th January; while at Corsham Lake (Wiltshire) a pair was seen with one small young on 14th February.

Although **Gannets** *Sula bassana* are not usual breeders on Fair Isle (Shetland) nine large nests were found there in July, chicks being seen in four, an egg in a fifth and adults sitting on the remainder; and 96 chicks were counted at England's only gannetry, at Bampton cliffs (Humbly Grove), where, incidentally, 53,000 pairs of **Kittiwakes** *Rissa tridactyla* were a significant increase on the 22,000 censused in 1964. At least 183 nests were contained in Britain's largest colony of **Heron** *Ardea cinerea*, at Northward Hill (Kent), this being the highest number ever recorded. **Bitterns** *Botaurus stellaris* were booming on 1st January at Leighton Moss, the earliest date ever at this Lancashire reserve, and good numbers of young both there and at Minsmere (Suffolk) indicate a successful breeding season.

On the Ouse Washes (Cambridgeshire/Norfolk) rarer ducks included five pairs of **Pintail** *Anas acuta* and nine of **Garganey** *A. querquedula*, and at Chew Valley Lake (Avon) 138 **Gadwall** *A. strepera* were raised from 21 broods. Several **Golden-eye** *Bucephala clangula* summered in England, mainly in the north and the Midlands.

We received little information on breeding successes or otherwise of raptors, but the following may be of interest. At Minsmere there were four female **Marsh Harriers** *Circus aeruginosus* and two males: one pair raised five young; the other male was mated with the remaining three females, two of which each succeeded in rearing four young, while the third, perhaps not surprisingly, failed. The total of 13 young raised is, however, most encouraging. **Montagu's Harriers** *C. pygargus* were present in the breeding season in Somerset, Hampshire and Kent but no reports of proved breeding were received. Unhappily the **Ospreys** *Pandion haliaetus* at Loch Garten (Highland) failed owing to a faultily constructed nest.

There were 55 pairs of **Black-tailed Godwits** *Limosa limosa* on the Ouse Washes, twelve more than in 1974, but only 20 pairs raised young, the others attempting to nest in unsuitable habitat on farmland; several breeding pairs were also reported on the Somerset levels. Twelve **Reeves** *Philomachus pugnax* were on the Ouse Washes throughout the season but breeding success is not known. **Avocets** *Recurvirostra avosetta* had a very good breeding season in Suffolk: at Minsmere 41 pairs raised 60-64 young, and at Havergate 107 pairs reared 80 young (86 pairs and only six young in 1974); nine other pairs were known to have bred in the county, making a total of 157 pairs, the highest number since the area was re-colonised in 1947. Two male **Mediterranean Gulls** *Larus melanocephalus* were in the gull colony at Needs Oar (Hampshire) intermittently during the breeding season but apparently no nesting was attempted.

The **Snowy Owls** *Nyctea scandiaca* on Fetlar (Shetland) raised four young to the flying stage. At Matfen (Northumberland) a young **Wryneck** *Jynx torquilla* was found on a window-sill on 15th July, an interesting sign of possible successful breeding in the area. The mild winter of 1974/75 was probably responsible for a number of instances of abnormally early breeding by several species. A nest of **Blue Tits** *Parus caeruleus* containing four eggs was found in a nest box at Epperstone (Nottinghamshire) in the first week of February, and a pair was building at Henbury, Bristol, on 19th. At Brockton (Salop) eggs were present in the nest of a **Wren** *Troglodytes troglodytes* on 1st February. Early-nesting **Black-**

birds *Turdus merula* were found at Guide Post (Northumberland) on 12th January (nest with eggs), at Bearsted (Kent) on 28th (feeding young) and in the Coombes Valley (Derbyshire) in the second week of February (fledged young); and a completed nest of a **Song Thrush** *T. philomelos* was discovered at Graveney (Kent) on 21st January. A pair of **Starlings** *Sturnus vulgaris* was feeding young near Dartford (also Kent) on the exceptional date of 15th January.

A **Dipper** *Cinclus cinclus* feeding young near Edcote in July provided the first proved breeding of the species in Northamptonshire. **Cetti's Warblers** *Cettia cetti* continued their increase in Britain: in the Stour Valley (Kent) possibly 56 singing males were estimated in spring, and successful breeding took place in south Devon (see *Brit. Birds*, 68: 393-408). Two singing male **Reed Warblers** *Acrocephalus scirpaceus* were at Teesmouth in June and one pair held territory there in July, the last breeding in the Cleveland area having been in 1907. Numbers of **Sedge Warblers** *A. schoenobaenus* were reported to be well below the normal level in the Tyneside area but **Whitethroats** *Sylvia communis* continued the slight comeback noted in the last two years after the 1969 collapse: in Tyneside numbers were probably approaching normal again, and a further improvement was noted in the Trent Valley, while a satisfactory increase was recorded in south-west England. In central southern England **Dartford Warblers** *S. undata* fared well, although first broods generally suffered heavily owing to the sudden cold spell in the spring. First ever breeding of **Wood Warblers** *Phylloscopus sibilatrix* occurred in Northamptonshire, a pair nesting in Badby woods; and three pairs of **Firecrests** *Regulus ignicapillus* in Worcestershire (one nest found on 6th June) constituted the first breeding of the species, now expanding its range, in the west midlands area. A pair of **Red-backed Shrikes** *Lanius collurio*, also in Worcestershire and accompanied by two juveniles, in August was well outside the usual and contracting breeding range of this species in England.

Finally, a most interesting case of nest-usurping was reported from Dipton (Northumberland): the nest contained initially five eggs of **Pied Flycatchers** *Ficedula hypoleuca*; **Blue Tits** then proceeded to build on top of these and laid nine eggs, the flycatcher adding one more of its own to this clutch; seven of the tits' eggs and the single flycatcher egg hatched and all the young were subsequently reared by the Blue Tits.

STOP PRESS Surf Scoter, King Eider and a Spoonbill at Loch Fleet (Highland) at end of December and into January. Lesser White-fronted Goose at Slimbridge (Gloucestershire) from 4th January.



Scotch Wildlife

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Tables should be numbered with arabic numerals, and the title typed above in the style used in this issue. They must either fit into the width of a page, or be designed to fit a whole page lengthways. All tables should be self-explanatory.

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British Birds

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Received

Laying dates of four species of tits in Wytham Wood, Oxfordshire

E. K. Dunn

It has been argued by Perrins (1970) that laying a large clutch imposes a considerable extra load on the food-gathering abilities of a small bird. From this, he suggested that the date at which individual birds in a population begin laying is related to the food supply at the start of the breeding season: egg-laying cannot begin until food has become sufficiently abundant for each female to find enough to start producing eggs without risk to her own body maintenance. Jones (1971) provided indirect support for this hypothesis by demonstrating that small female Great Tits *Parus major* tend to lay earlier than large ones, probably because smaller birds require less food for body maintenance (Gibb 1957).

Perrins (in prep.) has extended this interpretation to explain why the smaller tit species lay earlier than the larger ones. Although the tits of the genus *Parus* have been the subject of detailed research (Lack 1971, Barnes 1975) our knowledge of their laying dates is surprisingly incomplete. It is known that in deciduous woodland Blue Tits *P. caeruleus* start laying before Great Tits (Lack 1966, Frederiksen *et al.* 1972). Coal Tits and Marsh Tits *P. palustris*, however, breed rather sparsely in deciduous woodland and little has been published on their time of laying. The data collected by Frederiksen *et al.* in Denmark suggest that Coal and Marsh Tits begin laying at about the same time as Blue Tits, but their sample sizes were small. Ryves (1943) has shown that in north Cornwall Coal Tits fledge before Blue Tits, though this does not necessarily imply an earlier laying date for Coal Tits since they usually lay the smaller clutch; in other words, a Coal Tit could start laying at the

same time as a Blue Tit and still fledge its young earlier. Thus there is no conclusive evidence that either Coal Tits or Marsh Tits differ significantly in their laying dates from Blue Tits.

The study of tits in nest boxes in Wytham Wood near Oxford, started by Lack in 1947, had, by 1975, yielded 133 records of laying dates for Coal Tits and 80 for Marsh Tits. Here, these are compared with the now more extensive data on Blue Tits and Great Tits, and with published information on Long-tailed Tits *Aegithalos caudatus* in Wytham (Lack and Lack 1958, Gaston 1973).

METHODS

For each species in each year, the mean date on which the first egg was laid, excluding repeat and second clutches, is taken as a measure of the timing of breeding. Following Kluyver (1951) and Lack (1966), laying dates have been numbered from 1st April, which is 1, so that 30th April is 30 and 1st May is 31 and so on, and the means are taken to one place of decimals. The nest boxes in Wytham are distributed over eight areas of woodland which differ to varying extents in elevation, slope, aspect and vegetation. These differences are reflected in the laying dates of the tits which inhabit each area, though in the cases of Blue and Great Tits, which breed in relatively large numbers throughout the wood, laying dates for the whole wood are little affected by area-specific differences.*

RESULTS

The data are shown in table 1. Coal Tits and Marsh Tits were only occasionally recorded in nest boxes before 1959. The year before, Dr C. M. Perrins had begun to expand the study by putting up boxes over a much wider area of the Wytham estate and, since 1964, about 900 boxes embracing all the 240 ha of woodland have been available to the tits. In addition, laying dates tended to be more advanced in these early years of the study (1947-61: Blue Tits 24.0, Great Tits 26.9; 1962-75: Blue Tits 27.0, Great Tits 30.8). Thus, laying dates for 1947-75 as a whole tend to underestimate the real gap separating Coal and Marsh Tits from the other two species. A more meaningful comparison uses only those years when all four species were recorded breeding in nest boxes. The table shows that there was considerable variation in the order of laying over the 18 years concerned, but Coal Tits appeared on average to lay first, a day before Marsh Tits, two days before Blue Tits, and almost six days before Great Tits. Matched pairs t-tests showed that each of the three smaller tits laid significantly earlier than Great Tits.

*Each year's laying dates of the small breeding populations of Coal and Marsh Tits have been corrected for area differences by weighting means, but those of Blue and Great Tits have not.

Table 1. Mean annual laying dates of four tits *Parus spp* in Wytham Wood, Oxfordshire

The dates are calculated from 1st April, which is 1, so that 30th April is 30 and 1st May is 31, and the means are taken to one place of decimals

Year	COAL TIT <i>P. ater</i>		MARSH TIT <i>P. palustris</i>		BLUE TIT <i>P. caeruleus</i>		GREAT TIT <i>P. major</i>	
	Date	No.	Date	No.	Date	No.	Date	No.
1947	—	—	—	—	28.7	15	33.5	17
1948	—	—	—	—	10.2	41	10.5	39
1949	20.5	1	19.4	1	22.3	48	23.4	60
1950	10.5	1	24.4	2	22.9	34	23.8	31
1951	31.3	4	—	—	36.4	34	39.6	32
1952	20.0	2	—	—	23.9	17	23.5	20
1953	23.5	1	22.4	1	28.1	14	32.7	21
1954	—	—	12.4	1	22.2	18	26.6	33
1955	—	—	—	—	29.1	13	33.2	32
1956	24.5	1	—	—	32.1	15	33.7	24
1957	—	—	—	—	14.9	32	17.4	50
1958	—	—	31.1	2	32.1	47	35.7	56
1959	22.0	2	22.5	1	20.0	108	22.4	127
1960	18.3	3	17.5	3	20.1	135	25.6	147
1961	15.5	1	—	—	16.3	209	21.4	253
1962	26.0	2	27.6	1	31.9	135	32.3	172
1963	22.7	6	19.6	1	30.0	199	28.3	165
1964	28.3	4	33.2	2	28.9	182	32.5	243
1965	20.0	3	22.2	3	24.2	202	27.8	224
1966	31.6	5	27.7	4	29.8	260	34.0	186
1967	22.7	11	22.4	4	22.5	244	28.6	126
1968	23.8	14	28.1	7	26.3	210	27.4	161
1969	27.3	16	31.4	3	32.5	217	33.1	172
1970	31.7	8	28.5	5	34.3	237	34.3	124
1971	28.3	12	—	—	27.9	254	33.3	206
1972	24.7	8	18.5	6	18.1	214	25.6	152
1973	21.1	11	23.8	11	22.5	282	31.5	171
1974	18.8	8	18.5	11	19.1	333	29.9	129
1975	28.4	9	30.6	11	29.4	423	32.0	170
MEANS								
and	23.5	133	24.1	80	25.4	4172	28.7	3343
TOTALS								
MEANS FOR								
YEARS	23.4		24.4		25.7		29.2	
IN COMMON								

Coal Tits also laid significantly earlier than Blue Tits ($t = 2.35$, $p < 0.05$, 2-tailed), but not earlier than Marsh Tits, which, in turn, did not lay significantly earlier than Blue Tits.

DISCUSSION

Laying date and clutch size

It used to be thought (Dr J. Gibb, in Lack 1955) that the Blue Tit's larger clutch might explain why it started laying a little before the Great Tit in deciduous woods. By starting earlier, its young would therefore hatch at about the same date as those of the Great Tit, and both would benefit from the peak emergence of caterpillar food. Perrins (1965, 1970) suggested that other factors were likely to be involved, and a simple relationship between clutch size and laying date is unlikely. If the clutch sizes of the four *Parus* species in Wytham are listed in order of the laying dates found here, no consistent trend emerges: Coal Tit 9.7, Marsh Tit 7.7, Blue Tit 10.7, Great Tit 9.5. (The last two values are from data for 1947-64 in Lack (1966), the other two from Wytham nest record cards for 1949-75.)

Laying date and body weight

The laying dates follow in the same sequence as the body weights of the species concerned. Average winter weights of birds caught in Wytham are: Coal Tit 8.9 g (204 birds), Marsh Tit 10.5 g (83), Blue Tit 10.7 g (450), and Great Tit 19.2 g (490). (The figure for Marsh Tits was calculated from recent records, and those for the other species from data in Owen (1954).) The Great Tit, which is by far the heaviest of the four species, lays markedly later than the other three. Furthermore, the lightest tit species in the wood, the Long-tailed Tit, weighing on average 7.7 g (42 birds, this study), is by far the earliest breeder, sometimes starting as early as the end of March, and on average probably not later than about 21st April (Lack and Lack 1958, Gaston 1973). Thus the general pattern emerges of progressively earlier laying with descending order of body size, which agrees with Perrins' (in prep.) predictions. Unfortunately Willow Tits *P. montanus*, which at 10.0 g (20 birds, this study) are intermediate in weight between Coal Tits and Marsh Tits, do not breed in the Wytham nest boxes and therefore there are no records of their laying dates in the wood.

Laying date and habitat

Van Balen (1973) has shown that the maximum food supply in oakwoods is much larger, and peaks earlier, than that in pinewoods. For several years, Lack (1955, 1958) compared the laying dates of tits in a number of broadleaved (mainly oak *Quercus robur*) and coniferous (mainly Scots pine *Pinus sylvestris*) habitats in the south of England. In Lack's analysis, the data for broadleaved woods were lumped for the purpose of comparison with conifers; he found that there were no consistent differences between laying dates in the two sorts of habitat. In table 2, the laying dates for 1949-53 of Great

Tits and Coal Tits in Mousehall, a Scots pine plantation in Norfolk, are compared with the corresponding figures for Marley Wood in Wytham; there is again no difference (matched pairs t-test). Laek concluded that Great Tits, and also Blue Tits, are primarily adapted to broadleaved woods and unable to adjust their laying dates to coniferous woods. Van Balen (1973) replicated Laek's findings for the Great Tit and provided support for Laek's conclusion by demonstrating that the tits' mean hatching date in Dutch pinewoods correlated well with the earlier caterpillar peak in nearby oakwoods, but not at all with the peak in the pinewoods. The Great Tits were apparently unable to time their breeding to profit from the later emergence of caterpillars in the coniferous habitats.

Laek did not attempt to assess the situation for Coal Tits, which are known to prefer coniferous habitats (Partridge 1974). The Marley data for this species were very limited for 1949-53 but there

Table 2. Mean annual laying dates of Great Tits *Parus major* and Coal Tits *P. ater* in Marley Wood, Oxfordshire, and Mousehall, Norfolk

Data for Coal Tits in Marley from this study, but not weighted for area, the rest from Lack (1955). The dates are calculated from 1st April (see table 1)

Year	GREAT TIT		COAL TIT	
	Marley	Mousehall	Marley	Mousehall
1949	23	25	21	17
1950	29	30	11	12
1951	40	39	32	28
1952	23	22	21	18
1953	33	36	24	22
MEANS	29.6	30.4	21.8	19.4
DIFFERENCES	+ 0.8 days		- 2.4 days	

is some indication (table 2) that laying tended to be earlier in Mousehall than in Marley. Thus the Coal Tit may be able to start breeding earlier in its preferred coniferous habitats in spite of the fact that food during the spring is probably much more abundant in broadleaved woods.

ACKNOWLEDGEMENTS

I wish to thank Derek Onley, who first suggested this topic to me a long time ago, and Dr C. M. Perrins, who suggested it independently. The data have been collected by numerous fieldworkers climbing an estimated 160 km of ladder in Wytham Wood since 1947. I wish to thank Dr Perrins, Dr A. W. Diamond, Dr L. Partridge and M. C. Garnett, who kindly read and criticised an earlier draft.

SUMMARY

Few data have previously been published on the breeding seasons of Coal Tits *Parus ater* and Marsh Tits *P. palustris* in deciduous woodland. From a long-term study of tits in Wytham Wood near Oxford, typical laying dates of these two species have been calculated, along with those for Blue Tits *P. caeruleus* and Great Tits *P. major*. Comparisons between these and dates for Long-tailed Tits *Aegithalos caudatus*, which also breed in the wood, suggest that the order of laying follows a sequence of increasing body size, beginning with the Long-tailed Tit. This trend is consistent with current theory on the timing of breeding seasons. The Coal Tit fits into the sequence of laying despite the fact that its preferred habitat is coniferous woodland. However, it is suggested that its breeding season may start slightly earlier in coniferous than in deciduous woodland.

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The flight behaviour of Starlings at a winter roost

James Brodie

Plates 5-8

INTRODUCTION

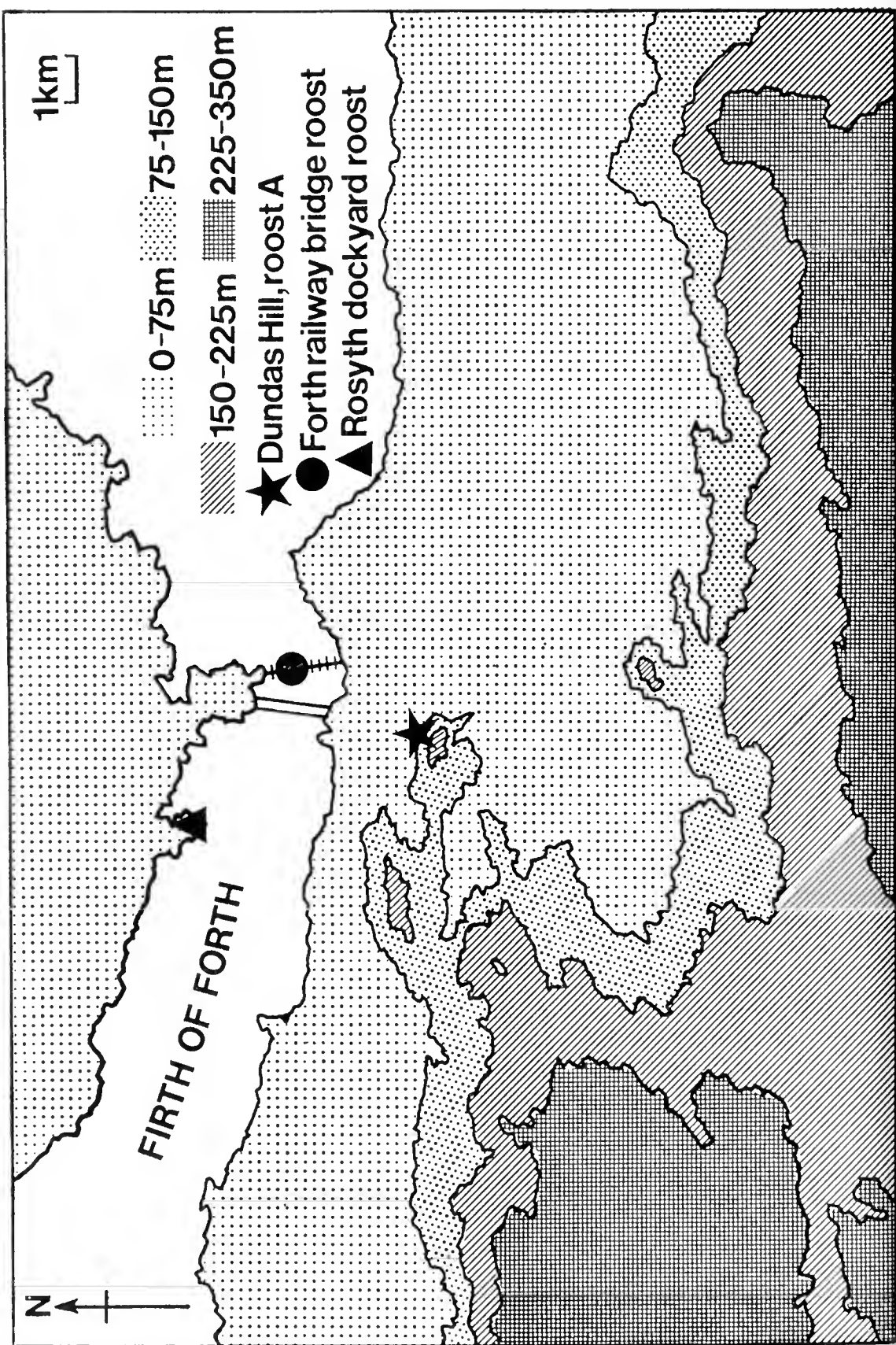
Co-ordinated flying displays by flocks of Starlings *Sturnus vulgaris* are often a feature at pre-roosting areas, but the most spectacular displays occur at the main roost, when very large numbers of birds fly together, prior to final roosting. On many evenings, however, the Starlings may quickly enter the roost on arrival, or give only a brief flying display.

At roosts in central London which are occupied throughout the year, mass evolutions occur only from mid-July to late March (Cramp *et al.* 1957), but according to Spencer (1966) aerial evolutions are independent of season and size of roost and are at their best when high winds make it difficult for flocks to alight, and when the Starlings react to the presence of a Kestrel *Falco tinnunculus* or similar predator. However, Bickerton and Chapple (1961) observed that on very windy or wet evenings Starlings flew straight into their roost, often without rising more than a metre or two above ground; and Wynne-Edwards (1929) observed that Kestrels and Buzzards *Buteo buteo* moved off when caught near the roost by incoming flights of Starlings. In the absence of a satisfactory explanation for the Starlings' complex flight behaviour at the roost, Wynne-Edwards (1962) said of their aerobatic display: 'it seems quite irrational to dismiss what is certainly the starling's most striking social accomplishment merely as a recreation devoid of purpose or survival value, and wiser to assume that a communal exercise so highly perfected is fulfilling an important function'.

In order to obtain further information about Starling flight behaviour prior to roosting, and the apparently spontaneous changes in location of the roosting site, evening observations of Starlings were made during the winter of 1970/71 at a rural roost near Edinburgh, in the old county of West Lothian.

ROOST SITE

During September 1970 Starlings moved from their usual roosting site on the Forth Road Bridge and established a roost almost two km inland on Dundas Hill, a rounded outcrop of wooded land which rises from a coastal strip of undulating farmland (see fig. 1). Dundas Castle stands approximately 80 metres above sea level, surrounded by mixed coniferous and deciduous trees which were used by the



Starlings as their main roosting site during the winter of 1970/71 (see roost A in fig. 2), and in this position, nearly 20 metres below the summit, roost A was protected from winds blowing from directions between the approximate compass bearings of 160° and 256° . As protection was given from prevailing south-westerly winter winds, this directional segment will be referred to in the account which follows as the 'normal-shelter zone'.

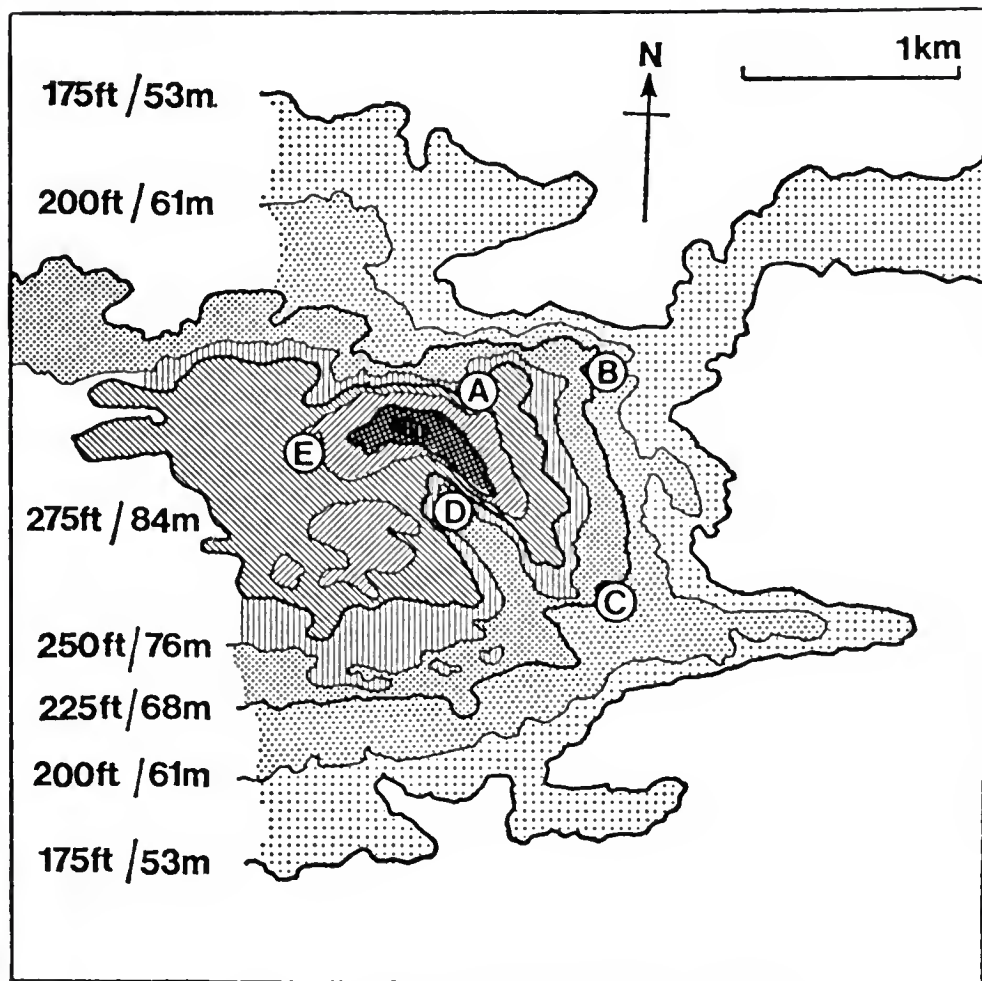


Fig. 2. Topography of Dundas Hill, Lothian

POPULATION CHANGE AND ASSEMBLY

The number of Starlings using roost A increased steadily during winter, from approximately 30,000 at the end of September to almost 75,000 at the beginning of February; the total then rose quickly to around 150,000 before the mass departure of birds from the study area at the end of February (Brodie 1974).

Fig. 1 (opposite). Topography of the land around Dundas Hill, Lothian

During October, November and December, Starlings assembled above their roost on arrival from distant pre-roosting areas, but at the beginning of January an intermediate pre-assembly area was established 1 km north-east of Dundas Castle. This disrupted the usual flight behaviour, as many flocks displayed in the pre-assembly area and flew back and forth between this area and their final roosting site. From the end of January until the roost broke up on 23rd February all the birds gathered together on farmland 3 km SSE of Dundas Castle, where they formed great swarms that milled about the sky and fields. Large scale display at the roost site was almost absent during this period as mass flight took place in this new area and departure to roost was made as darkness fell, with a steady stream of flocks flying almost directly into the roost.

The analysis of flight patterns presented in this paper is therefore based on the results of observations made during October, November and early December, when roosting assembly was of a direct nature, i.e. pre-roost to roost.

METHODS

Details of flight patterns were recorded from a point 1 km north of Dundas Castle, and observation began about one hour before sunset. A comprehensive account of weather conditions prevailing in the area of the roosting site was obtained from the meteorological station at neighbouring Turnhouse Airport.

Initially, flight displays were grouped according to the duration and intricacy of the spectacle provided, but when these groups were related to prevailing conditions of wind speed, temperature and vapour pressure no relationship could be established to show that any one or combination of these factors exerted a controlling influence on the Starlings' behaviour. However, when it was noticed that wind direction influenced the Starlings' performance, the topography of the roosting site was then considered and it became apparent that wind currents in the immediate area of the roosting site could be related to four major categories of flight behaviour (see results), namely (I) mass aerobatic display over the roost, (II) mass aerobatic display over the roost, followed by division into large ranging flocks, (III) brief display by individual flocks, and (IV) no flight display.

For the purpose of analysis, wind directions have been converted into positive or negative values by designating winds outwith the normal-shelter zone (160° to 256°) as positive, and those within the zone as negative. Dividing all possible directions into two sets, by a line bisecting the angle made between 160° and 256° , then allowed all kinds to be referred to these compass bearings, e.g. $276^{\circ} \equiv +20$, $140^{\circ} \equiv +20$, $236^{\circ} \equiv -20$, $180^{\circ} \equiv -20$.

RESULTS

Category I

Mass aerobatic displays over the roost. Various flight patterns were formed when Starlings flew in and out of different air streams produced by south-westerly winds flowing over the contours of Dundas Hill. The usual type of display (Ia in table 1) consisted of large flocks flying in long, low, streaming movements above the roost with small detached flocks flying in tight formation, and nearly half the total number of birds flying above the others in a high column, the overall effect (reminiscent of a 'ten-gallon-hat') reflecting the flattened 'head and shoulder' contour section of the

Table 1. Summary of distribution of observations and weather conditions relating to flight categories I to IV (all results expressed as mean values)

An explanation of the category sub-groups a, b and c is given in the text

	FLIGHT CATEGORY							
	I			II		III	IV	
	a	b rapid	c slow	a	b		a	b
Number of observations	5	2	2	4	2	3	4	1
Temperature in °C (dry bulb)	9.1	10.4	2.6	8.7	10.9	8.8	9.6	9.5
Vapour pressure (millibars)	97.2	106.0	65.6	74.8	110.0	81.7	109.8	85.0
Wind speed (km per hour)	21.4	38.5	4.5	24.8	26.0	11.3	29.0	57.0
Rainfall (1/10 mm)	—	—	—	—	—	—	4.8	—
Wind direction	-29.6	-36.0	-16.0	35.5	-31.0	69.33	-18.5	4.0

hill. On other occasions the birds flew together in one vast cloud-like column, the top of which was just visible at a great height above the roost. Within such a cloud, Starlings were observed flying very rapidly on windy evenings (Ib), or very slowly on calm evenings (Ic), and in both cases formation-flying occurred only shortly before entry to roost. It is noticeable that slow-flying cloud formation occurred when wind speed and temperature were both low. Also, wind speed on 'rapid-flying-cloud' evenings is higher than on sub-group Ia evenings and so it is possible that as wind speed increased the sheltering effect of the land mass was reduced and 'streaming movement' Starlings were obliged to soar on upcurrents with the others.

Category II

Mass aerobatic display over the roost, followed by a division into very large ranging flocks. When winds blew from a direction outwith the normal-shelter zone, Starlings gathered above their usual roosting site, roost A, until nearly all had arrived, and then the whole mass split into two or three very large flocks which flew in great ranging sweeps, low across woodland and/or over to the nearby Forth Road Bridge (used as a roosting site earlier in the winter, and in previous years), before returning to roost in some sheltered area or areas of woodland (IIa). This large scale searching flight was observed to a lesser extent on a few other occasions when wind blew from within the normal-shelter zone. On these latter occasions (IIb) the Starlings had spent the previous night roosting at an alternative site to roost A, and their apparent indecision about returning to roost A resulted in a great deal of flying back and forth between both sites.

Category III

Brief display by individual flocks before flying in to roost. On some occasions an alternative roosting site to roost A was quickly entered on consecutive evenings when Starlings arrived at the roosting area with wind still blowing from a direction outwith the normal-shelter zone. Possibly owing to lack of favourable wind currents, the birds did not fly about for long before entering the roost. In this group, and in category II, occasional minor resettling movements across tree tops were observed a short time after the birds had apparently settled for the night.

Category IV

No flight display. When Starlings arrived at the roost with rain falling and strong winds blowing, they flew straight in to roost, and when rain began to fall during an aerobatic display they dived quickly into their roost (IVa). Very strong winds produced a similar effect, the birds entering their roost almost directly on arrival (IVb).

In order to consider the individual importance of several factors which might simultaneously affect flight display the evening observation results were examined statistically by the method of analysis of variance. The results of this analysis are shown in table 2, and it is evident that the only statistically significant ($P = < 5\%$) factors affecting flight performance were rainfall, wind speed and wind direction. These results support the observations that (a) rainfall and very strong winds inhibited display and that (b) winds of varying speed blowing from different directions relative to the roosting site were largely responsible for the flight behaviour described in categories I to III, for the period October to early December.

Table 2. Results of an analysis of variance with data relating to observations of flight behaviour of Starlings *Sturnus vulgaris* described in categories I to IV

	CATEGORIES I TO III INCLUSIVE (degrees of freedom 5×12)		CATEGORIES I TO IV INCLUSIVE (degrees of freedom 7×15)	
	Variance ratio (F)	% probability of variance being due to chance (P)	Variance ratio (F)	% probability of variance being due to chance (P)
Temperature (°C)	2.07	>5	1.14	>5
Vapour pressure (in bar)	2.01	>5	1.44	>5
Wind speed (km per hour)	3.95	<5	5.75	<1
Rainfall (1/10 mm)	—	—	5.98	<1
Wind direction	5.40	<1	4.97	<1

CHANGES IN LOCATION OF THE ROOSTING SITE

Minor changes in location of the roost were frequently observed and each move was associated with a change in wind direction which made roost A unfavourable because of exposure to wind. Flight behaviour on such occasions is described in category II, and examples of the alternative choice of roosting site are given below:

(i) 3.10.70. No rain and wind direction 280° . The Starlings divided into two small flocks and one large flock. The small flocks moved into lower trees south-east of roost site A, and the large flock moved into lower trees slightly north-east of roost site A.

(ii) 20.10.70. No rain and wind direction 320° . The Starlings divided into two flocks of unequal size, the smaller of which roosted in lower trees to the south of roost site A, while the larger flock established a roost at the east end of the woodland (roost B in fig. 2), approximately 600 metres away from roost site A.

(iii) 5.11.70. No rain and wind direction 290° . A large-scale move from roost site A over to the Forth Road Bridge (approximately two km away) where several thousand Starlings roosted for the night, but the great majority of birds returned to roost in sheltered lower trees a little to the north-east of roost A.

During February the number of Starlings roosting on Dundas Hill increased greatly and roost A was eventually abandoned in favour of a succession of new roosting sites in areas C, D and E shown in fig. 2. Changes in wind direction were not associated with these moves, which took place amid great agitation before the birds' departure at the end of February. Similar erratic changes of roost site were observed by Wynne-Edwards (1962) at a roost near Bristol shortly before it broke up around mid-March.

METHOD OF ENTRY TO THE ROOST

Entry to the roost was in no way hampered by strong winds as suggested by Spencer (1966), and throughout winter Starlings

showed no regular method of entry which would allow calculation of their number, as suggested by Symonds (1961). The methods of entry to the roost each evening were:

- (1) Directly in small groups or streams on arrival (see category IV).
- (2) Continuously dropping from large flocks above the roost in 'showers' over a wide area.
- (3) Rapid blanket-like drops over a wide area.
- (4) Funnelling down from the main swarm, which swung in pendulum-like motion above the roost. Up to three funnels at one time were observed.

DISCUSSION

Display was a feature of roosting activity throughout winter, although the area where display took place changed from the immediate vicinity of the roosting site to more distant areas around the roost as the number of Starlings increased and their method of assembly altered. These communal manoeuvres may possibly provide Starlings with an opportunity to assess their numbers for dispersionary purposes, as postulated by Wynne-Edwards (1962), but the nature of the flight behaviour observed at this roost suggests that the primary function of display may simply be to provide the birds with an important visual marker which will facilitate their detection of the roosting, or pre-roosting, mass of Starlings.

The indicative nature of display was evident when changes in location of the roosting site were made (see category II). Starlings first displayed en masse above the previous evening's roost site until nearly all had arrived, and then they formed detached ranging flocks which bunched into display patterns over 'possible' alternative roosting sites, until one (or several) of these locations then became a focal point for mass gathering of the ranging flocks prior to their roosting at this spot.

The involvement of display as a marker, rather than as an opportunity for population assessment, was perhaps most clearly demonstrated on evenings when unfavourable weather conditions prevailed at roosting time. On such occasions each flock displayed above the roost only until the arrival of the next flock, whereupon the later arrivals displayed while the earlier arrivals entered the roost (category III). On favourable evenings it was also common for many Starlings to detach themselves from display flight and enter the roost long before the total roosting population had arrived. A further demonstration of display marking was also observed during the pre-migration increase in numbers, when small roosts from the Forth Railway Bridge and Rosyth Dockyard flew over to the vacant area of roost A, where they circled briefly, then quickly

flew south-east to join the mass of birds which were displaying in this 'new' area. Similarly, Starlings flying to roost were observed to change direction and fly back to join pre-roosting flocks after the latter rose off the ground in brief formation flight.

As a visual signal there can be no doubting the effectiveness of flight display, which is often mistaken at a distance for smoke. Tight aerobatic formations continually alter the opacity of the display and create changes in the swarm shape, thus increasing the chance that the display will be noticed. North American Indian smoke signals embody similar principles.

In the central London area roosting Starlings were not observed to change their position on buildings in response to changes in wind direction (S. Cramp *in litt.*), but, as demonstrated in the section dealing with changes in location of the roosting site, protection from wind is an important factor which must be considered by the birds when choosing their roosting site. This is perhaps evident when one considers that protection from wind is the only common factor provided for by the many diverse roosting sites used by Starlings during winter months, e.g. reed beds, woodland, cranes, bridges and buildings (Potts 1967), and strange places like the barrel-shaped beacons which marked the sailing channel of the River Clyde (Stewart 1928), or on the ground in tunnels formed in thick grass (Kennedy 1929).

ACKNOWLEDGEMENTS

I wish to thank M. J. Richardson and J. M. Todd of the Department of Agriculture and Fisheries for Scotland, East Craigs, for advice and helpful comments given during the preparation of this paper.

SUMMARY

The flight behaviour of Starlings *Sturnus vulgaris* prior to roosting, and changes in location of the roosting site, are described and related to prevailing weather conditions. It is suggested that the primary function of flight display may be to provide Starlings with a visual marker which will facilitate their detection of pre-roosting or roosting areas. Consideration is also given to the importance of 'shelter from wind' as a factor influencing the Starling's choice of roosting site.

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PLATE 3. Above, pre-roost swarm of Starlings *Sternia vulgaris*, Kirkliston, Lothian, 1970/71 (photo: James Brodie). Below, a huge mass of Starlings blacken the sky, Shropshire (photo: H. R. Siley) — pages 51-60





PLATE 6. Starlings *Sturnus vulgaris* near Rhostic, Llanilar, Dyfed, 1966 (*photos: A. O. Chater*). Above, dense swarm display similar to the figure-of-eight pattern (page 55); below, a ranging flock

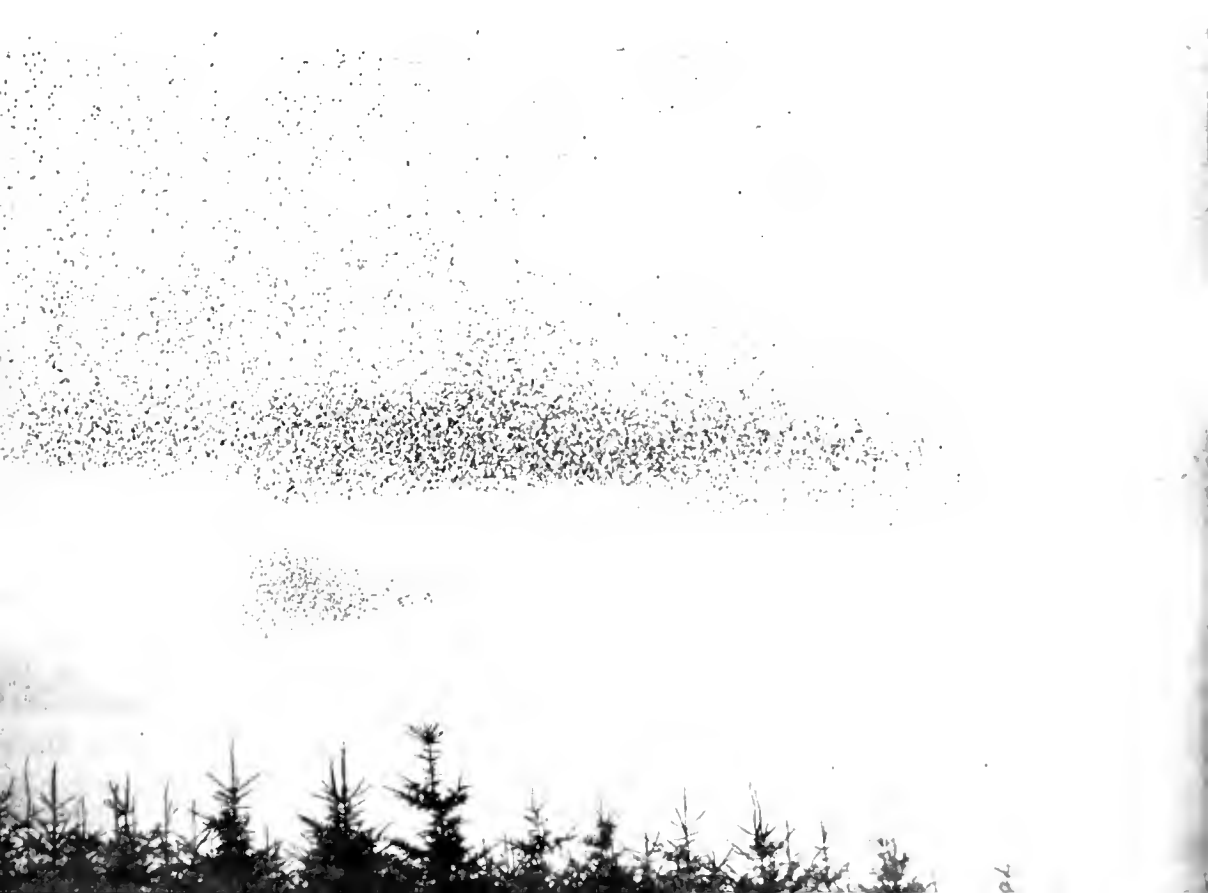




PLATE 7. Above, pre-roost flock of Starlings *Stercorarius* rising and falling, Kirkliston, Lothian, 1970-71 (photo: James Brodie). Below, Starlings assembling before flying to roost, Suffolk, 1970 (photo: Eric Hollis).



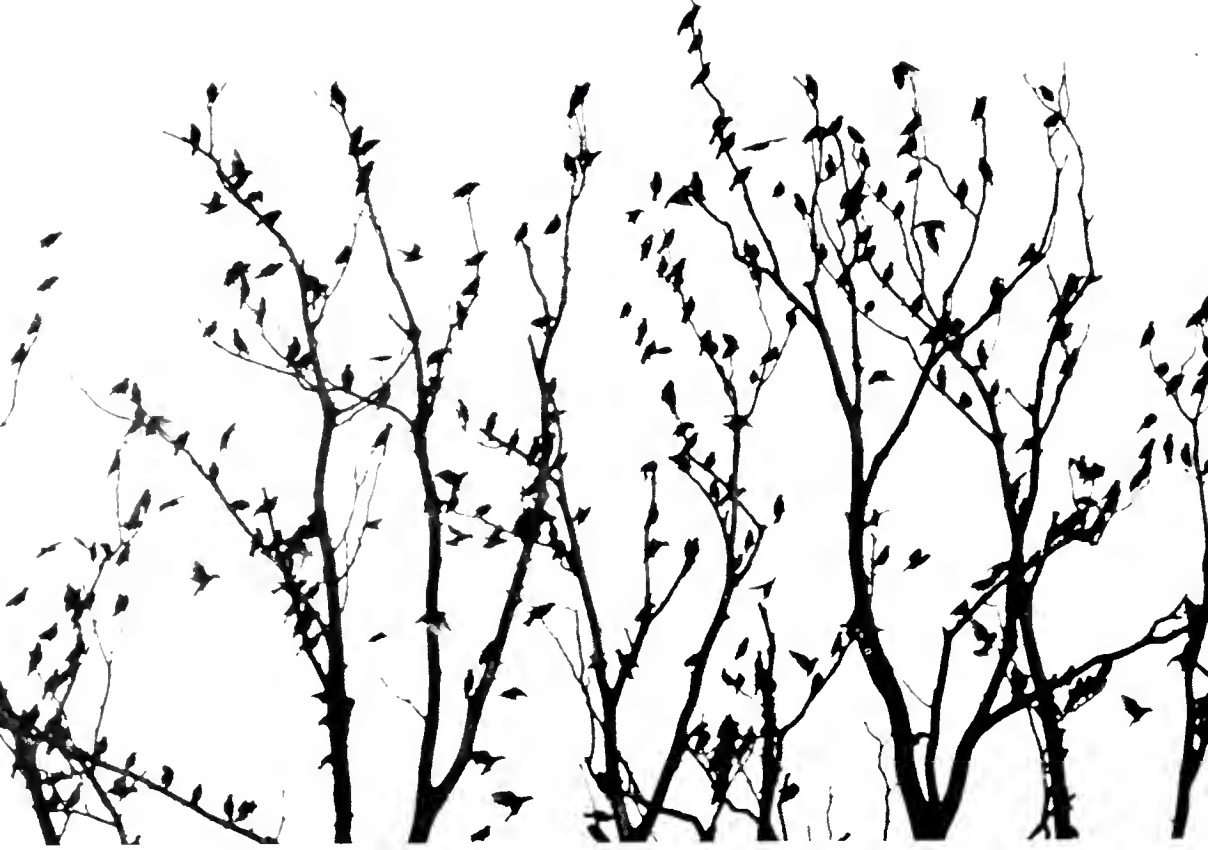


PLATE 8. Above, Starlings *Sturnus vulgaris* gathering together before going to roost, Suffolk, 1950. Below, Starlings at roost in a tree on the Embankment near Waterloo Bridge, London, February 1951 (photos: Eric Hosking)



Notes

Peregrine and Raven possibly contaminated by Fulmar oil

With reference to R. A. Broad's paper on Fulmar *Fulmarus glacialis* oil contamination (*Brit. Birds*, 67: 297-301), the following observations of possible oiling may be of interest. On 10th June 1971, I disturbed a female Peregrine *Falco peregrinus* from a low cliff near Waulkmill Bay, Orkney. The bird's plumage appeared very wet and bedraggled as though the feathers were saturated with some substance. It flew away with some difficulty across the bay. On 14th May 1973, at Backaskaill, Sanday, Orkney, I came upon a Raven *Corvus corax* resting under a bank. Again, the feathers appeared saturated and stuck together. As it flew away it managed to rise only a metre or two above the ground. Both these birds allowed much closer approach than is usual and I do not think they would have survived for very long. On neither occasion had it been raining and there were no pools suitable for bathing. Fulmars were plentiful on the cliffs near both areas, however, and it is highly likely that the state of the plumage of the Peregrine and the Raven was due to contamination by Fulmar oil.

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Injury feigning by Red-legged Partridge in water

Whilst walking along the towpath of the canal near Bull's Lock, Thatcham, Berkshire, on 29th June 1974, R. G. Wilkinson and I noticed an adult Red-legged Partridge *Alectoris rufa* leading a party of chicks along the path in front of us. The towpath at this point was flanked on both sides by overhanging rank vegetation and on the opposite side of the canal was a steep slope down to a reed bed. As we gained on the family party the chicks left the path and disappeared into the vegetation. When we were about level with the place where they were hiding the adult flapped across the canal—perhaps the only feasible direction in which to perform a distraction display—feigning an injured wing. It foundered in the middle of the canal and floated with the current. It was rather low in the water and at first pointed its bill straight ahead but after a second or two dropped its head so that the bill pointed diagonally down towards the water in an attitude which possibly indicated exhaustion or shock. It stayed in this position for about 30 seconds while the current carried it downstream, its body lying across the direction of flow. After it had floated along like this for about 20 metres the current brought it close to the opposite bank of the canal, whereupon it struggled to the shore and disappeared into the thick vegetation.

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Inland records of Kittiwakes H. G. Alexander, in his book *Seventy Years of Birdwatching* (1974, pages 159-160), briefly mentioned the question of overland migration by Kittiwakes *Rissa tridactyla* and quoted the idea which he put forward in 1937 that there may be a cross-country migration in February and March. On 5th March 1975 I saw Kittiwakes flying about over the regular evening gull roost at Cannock Reservoir (Chasewater), Staffordshire; eventually they bunched together and flew off steadily to the north-east in a compact flock of 37 adults. At least two others remained in the roost, giving an exceptional total of at least 39 adult Kittiwakes. The weather was fine and calm. This observation and some earlier sightings of adults in March and April which were apparently moving through in fine weather, together with my interest in Alexander's suggestion, prompted me to analyse the Kittiwake records in the Midlands area for the ten-year period from 1964 to 1973.

In the old counties analysed there were about 151 records in the period, distributed as follows: 46 in Staffordshire; 45 in Derbyshire; 21 in Northamptonshire; 12 in Nottinghamshire; 12 in Warwickshire; 7 in Leicestershire and Rutland; 7 in Worcestershire; 1 in Shropshire. The localities involved were widely scattered (though the Nottinghamshire records were all from the Trent valley, as were some of those from Derbyshire) and mostly concerned the larger reservoirs, though a very few were away from water. There were 25 records from Ogston Reservoir, Derbyshire, 16 from Cannock Reservoir, 15 from Blithfield Reservoir, Staffordshire, 13 from Pitsford Reservoir, Northamptonshire, and 13 from Belvide Reservoir, Staffordshire.

The annual totals were as follows: 13 in 1964; 11 in 1965; 9 in 1966; 7 in 1967; 20 in 1968; 24 in 1969; 9 in 1970; 19 in 1971; 20 in 1972; 19 in 1973. Of these records, 131 (86.8%) involved single birds; there were six records of two, two of three, five of four, one of five, two of six and one of seven birds. The largest flocks were ten at Blithfield Reservoir on 14th August 1968, 25-30 at Cannock Reservoir on 5th November 1967 and 34 (six adults) at Pitsford Reservoir on 16th November 1969.

Table 1 summarises the total number of records in each month over the ten-year period but it should be noted that the information concerning the age composition of the records is very incomplete. There seem to be three peak periods of occurrence, namely March/April, August and November/December. Immatures predominate in the autumn whilst adults occur chiefly in the winter and early spring. Though Kittiwakes were recorded in seven of the ten years in March and seven in April, the March/April period combined produced records in nine of the ten years, as did the February/March period. All ten years produced records at some time between

Table 1. Monthly distribution of inland records of Kittiwakes *Rissa tridactyla* in the Midlands area for the ten years from 1964 to 1973

	J	F	M	A	M	J	J	A	S	O	N	D
Number of years with records	4	6	7	7	6	2	3	9	5	6	8	8
Number of records	8	10	17	23	11	3	4	24	7	7	18	19
Number of birds	12	10	19	26	12	3	5	54	12	7	81	19
Records of adults	4	2	10	12	5		1	3	1		7	9
Records of imms		2	1	2	1		2	4	6	1	4	2

February and April and it seems that there is some regular movement of adults in the early spring, not necessarily connected with rough weather. The autumn peak seems to be due primarily to very young birds wandering inland (since any bird in first-year plumage in August must have fledged that summer) and the November/December peak is perhaps largely due to storm-driven birds. The reports give almost no indication of the prevailing weather conditions but certainly the flock of 25-30 birds at Cannock Reservoir in November occurred in gales and about four more were at Blithfield Reservoir on the same day. An Arctic Skua *Stercorarius parasiticus* was at the former locality and a Great Skua *S. skua* at the latter at the same time.

The local recorders, K. Allsopp, D. Amedro, C. J. Coe, A. Dobbs and C. Wright very kindly gave me the records for their respective counties and their prompt response was very helpful. The Staffordshire, Warwickshire and Worcestershire records were taken from the annual *West Midland Bird Reports*.

R. A. HUME

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Large numbers of Swifts killed by traffic On the evening of 27th June 1974 I investigated a report that many Swifts *Apus apus* were being killed by road traffic on the A5 near the sewage works just north of Dunstable, Bedfordshire. On reaching the site I counted 32 dead Swifts over a distance of 50 metres and there were probably more lying in the grass on the verges. There was a flock of about 80 Swifts still in the area, feeding on small, winged insects, probably aphids, which were abundant on one short stretch of the road. Because of the drizzling rain and general dampness the insects were flying very low, some just a few centimetres above the ground, thus creating the unusual conditions which resulted in such abnormally high mortality of their predators.

B. D. HARDING

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Dr K. E. L. Simmons comments that Swifts normally feed at high levels free of obstacles, the lower levels being exploited more by the

hirundines which are more adept than the Swift in evading hazards by rapid changes in flight direction. EDS

Great Tit eating bumblebee I should like to record an observation relating to T. R. Birkhead's paper, 'Predation by birds on social wasps' (*Brit. Birds*, 67: 221-229), in which he quotes references to Great Tits *Parus major* removing the stings of dead Honey Bees *Apis mellifera* and feeding on wasps *Vespula spp.*

On 19th April 1974, in a wood near Rotherfield, East Sussex, I was watching a Great Tit foraging in the undergrowth. It seemed to be holding a piece of nesting material in its bill but when I approached the bird to within about four metres I could distinguish the object as a queen bumblebee (either *Bombus lapidarius* or *Psithyrus rupestris*). The Great Tit released the insect several times, fluttering cautiously around it before recapturing it. When it was released, the bee flew slowly about the undergrowth but seemed incapable of flying away. Eventually the bird flew up to a nearby branch with the prey in its bill. It then held the bee down on the branch with its feet and pecked at it as if feeding on, for example, a peanut. Unfortunately I was unable to see whether the sting was removed but I suspect that this may have been accomplished when the bee was finally recaptured in the undergrowth. After about 30 seconds of feeding, the Great Tit, still with its prey, flew into the upper canopy of an oak tree where I lost sight of it and so was unable to determine whether the bee was totally devoured.

Birkhead suggests that birds may take advantage of torpid insects, on which they would not otherwise feed. Such torpidity may be induced by certain weather conditions such as high humidity or mist. My observation was made at about 06.45 hours on a damp morning and would seem to support Birkhead's theory, though it was difficult to tell if the bee was in a torpid condition as I did not see it before the Great Tit first caught it. Free and Butler (1959, *Bumblebees*) stated that lethargy and drowsiness can be caused by the bee spending the night away from its nest or feeding on certain flowers, such as those of lime *Tilia* and *Rhododendron ponticum*, whose nectar, in a concentrated form, is mildly toxic.

ANDREW GRAMB

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Presumed female Chiffchaff singing On 27th April 1975, at a farm near Maidstone, Kent, I was listening to a Chiffchaff *Phylloscopus collybita* singing some five metres away when a second bird, carrying nest material, appeared nearby. It transpired that I was standing within a metre of the nest site. According to *The Handbook* the nest is built by the female alone and I therefore presumed this

second bird to be the hen of the pair. As I watched her, she dropped the short pieces of dried grass and uttered two or three phrases of normal song before flying off. Within the next few minutes I was able to watch her resume nest building whilst the male bird continued to sing.

D. W. TAYLOR

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Fierce attack by Starling on House Sparrow An atypical case of a dispute between birds leading to a physical attack was observed by my mother, Mrs M. P. Abraham, in our garden at Amersham, Buckinghamshire, on 5th January 1975. Food in the form of kitchen scraps had been placed on the lawn and this had attracted numerous Starlings *Sturnus vulgaris* and House Sparrows *Passer domesticus*. In a dispute over a piece of bread a Starling managed to push a House Sparrow over on to its back. It then stood on the House Sparrow and pecked violently with a stabbing motion at its victim's breast. This behaviour continued for some seconds until a sharp rap on the window pane interrupted proceedings.

KEVIN D. ABRAHAM

16 Deep Acres, Chesham Bois, Amersham, Buckinghamshire

Rôle of birds in moss dispersal In 1973, during a study of the ecology of mosses in several Oxfordshire woods of beech *Fagus sylvatica* of various ages, it was found that besides lateral growth and spore dispersal, an important factor in the spread of mosses was fragmentation of existing clumps. In several cases, birds, by their feeding activities, were the agents of this last-mentioned method of dispersal.

Blackbirds *Turdus merula*, Robins *Erithacus rubecula* and Great Tits *Parus major* are particularly common in the older beech woods, which generally have less leaf litter than the younger woods and consequently more undergrowth and a greater abundance of moss on the woodland floor. The birds obtain a large part of their food by foraging on the ground, scraping or tossing aside leaves and other debris. During October and November 1973 Blackbirds were observed feeding among moss growth. In so doing they broke up and scattered portions of the robust mosses *Mnium hornum* and *Polytrichum formosum* over distances of a metre or two. In the two-month period 34 clumps of moss, averaging some two square centimetres each, were moved from one place to another within an area of five square metres and 18 similar pieces were transported into the same area. Not all the clumps so moved would survive but fragmentation presumably occurs throughout the year and there would be a high survival rate during autumn when wet weather produces extensive growth. Blackbirds, and probably also Robins and Great Tits, thus

have a significant rôle in the small-scale dispersal of mosses in woodland. Their rôle in long-range dispersal is difficult to assess; small fragments of moss on the feet or plumage might later grow, and moss spores must frequently be transported on birds' feet. Such spores of an unidentified moss were found in soil on the feet of a Song Thrush *T. philomelos* found dead in beech woodland.

G. W. H. DAVISON

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Reviews

Watching Sea Birds. By Richard Perry. Croom Helm, London, 1975. 230 pages; 16 line-drawings; 2 maps. £4.75.

This is not really a new book but a reprinting of parts of two of the author's earlier books, both of which—*Lundy Isle of Puffins* (1940) and *Shetland Sanctuary* (1948)—are now out of print, though not difficult to obtain second-hand. The newly published version lacks some of the original detailed breeding chronologies and incidental discussions but has gained a series of attractive sketches by R. A. Richardson.

An account of the breeding activities of Puffins, Kittiwakes, Razorbills and Guillemots on the island of Lundy in the Bristol Channel, and of Great Skuas, Arctic Skuas and Gannets on Noss in the Shetland Isles, takes up most of the book. Richard Perry was among the first of the early naturalists to record detailed observations of breeding biology and behaviour in the birds he watched; much of the information presented here is as original today as it was when first published. The book provides a valuable source of reference for modern workers in the fields of seabird breeding biology and recent studies, aided by ringing, have sometimes only confirmed Perry's speculations on the basis of his observations.

There was some controversy over the counts of seabirds on Lundy given by Perry; this is referred to in the foreword of the second edition of *Lundy Isle of Puffins*. In spite of this, Perry's work illustrates the decline in numbers of birds on the island in 35 years. Today Puffins are reduced to a few scattered pairs in areas where they were described by Perry as an 'endless army' of thousands. Less well appreciated perhaps, but also illustrated by this account, is the decline in numbers of the Guillemots and Razorbills on Lundy, from 6,000 and 5,000 birds respectively to 1,700 and 1,250

birds in 1973. One hundred and twenty Guillemots now nest in Devil's Chimney where Perry apparently counted a thousand chicks in 1939.

The book makes easy and engaging reading, giving one the feeling of the many hours of watching that went into the observations. The descriptions move from one species to another rather as one might walk round the island of Noss or Lundy and pause to look at the life on the cliffs below.

CLARE LLOYD

The Birds of Nottinghamshire. Edited by Austen Dobbs for the Trent Valley Bird Watchers. David & Charles, Newton Abbott, 1975. 226 pages; 16 black-and-white plates; several line drawings, maps and diagrams. £6.50.

This book is substantially a product of the work carried out by the Trent Valley Bird Watchers during the past 35 years. The historical aspects are covered in a short first chapter which credits Joseph Whitaker with the main impact up to 1907. There is a brief chapter on the topography of the county, followed by a substantial one on habitats—perhaps the most valuable part of the book—in which the results of several censuses are given. A chapter on migration outlines the importance of the Trent Valley as a migration route.

Unfortunately the systematic list falls far short of being the comprehensive description of Nottinghamshire ornithology that the book claims. On the dust jacket is a statement—‘The systematic list, the first comprehensive one since 1907, is designed to answer the innumerable questions on arrival and departure times of migrants, on recorded visits by rarities, or changes in numbers and distribution’; this it fails to do in anything like sufficient detail, especially for the rarities, where the information is so meagre as to be almost valueless. It is not enough for the second British record of American Nighthawk to be dismissed as ‘Rare vagrant. 1 in 1971’ without details or reference. The only British record of breeding by the Black-winged Stilt is summarised in a mere three lines. Surely this book is the place where all such county records should be fully documented—under one cover for easy reference.

The often abbreviated style is relieved at times by such gratuitous prose as ‘The Willow Warbler is a favourite migrant of the bird-watcher because it will travel during the day at low level, sometimes in loose groups, and also it attracts attention by singing’. Exactly what is meant by ‘Close contact with the Greenfinch suggests that it is not very intelligent: however, as it is obviously successful in a variety of habitats, including woodland, this conception must be wrong’? Similar examples are legion. The detail given for some of the commoner species is basically sound but in some cases it is too general and needs qualifying with Nottinghamshire in mind.

The inclusion of 16 photographs of common birds with no cross references in the text is pointless, especially as some are of poor quality. A series of county site and habitat photographs would have been more useful.

At £6.50 I would have expected a book on a grander scale, sufficient in itself to enable the reader to learn, in some detail, about the birds which have been recorded in Nottinghamshire. This is far from being the case; future workers will have to start all over again and delve into historical documents and annual reports to find such simple and necessary facts as dates. Why has it not been done thoroughly here? Despite a statement in the introduction that 'More Nottinghamshire birdwatchers asked for, or wanted, more background information which they could obtain only with difficulty—hence this book', I am afraid their lot is now only slightly improved.

JOHN R. MATHER

News and comment *Peter Conder*

Appointments to the Scientific Authority for Animals The Secretary for the Environment has appointed twelve members of the Scientific Authority for Animals to give advice on the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The appointments take effect from 1st January 1976, the date of the implementation of the Convention in the United Kingdom. The appointments are Professor V. C. Wynne-Edwards CBE FRS (Chairman), Dr M. R. Brambell, P. J. Conder OBE, Dr G. B. Corbet, R. S. R. Fitter, Miss A. G. C. Grandison, Dr C. J. O. Harrison, Professor Sir Andrew Huxley FRS, J. Reid CB DVSM, T. H. Scott, E. H. Tong FRICS and R. C. Upton. Further appointments are expected to be made. The main functions of the Scientific Authority for Animals will be to give advice on applications for licences to import animals of endangered species and certain products, such as fur skins, and to advise on amendments to the list of species to be controlled.

It is gratifying to see that the Government is at least implementing some of the provisions of the Convention through the Import, Export and Custom Powers (Defence) Act 1939, even though it has not yet ratified the Convention. Readers will remember that Lord Melchett promised that the British Government would ratify by the end of 1975. However, we understand that the Dependant Territories whose consent is necessary before such a convention is ratified were rather slow in taking the necessary action, and that further delay has been caused since the European Economic Community wish all member countries to ratify together, and not all member countries are ready to do so.

It is expected that the Government will soon introduce a Bill into Parliament which really will fulfil all the conditions without weakening existing legislation. The provisions of the 1939 Act has many loopholes which conservationists wish to see closed as quickly as possible.

Mauritius Kestrel Dr Stanley Temple paid a three-week visit to Mauritius in October 1975 according to the President's Newsletter of the ICBP. He found

that at least six and probably all of the seven Kestrels that were alive before the February cyclone have now been located: these seven birds include two adult pairs and three young birds from the 1974 breeding season. Two of the latter are together and may be attempting to pair. As to the adults, the pair that nested so successfully on a sheer cliff face last year have once again chosen a cliff site, unfortunately vulnerable to monkeys. Dr Temple believes that this apparently new propensity to choose cliff nest sites may be one of the major factors in saving the kestrel for posterity since tree sites are so much more open to predation by monkeys. He accordingly spent two days on the cliff face chosen this year, attempting to modify the likely nest holes to make them inaccessible to monkeys. It is indeed good news that these kestrels are continuing to hold their own but who is going to continue to be nursemaid for them when Dr Temple has finally to retire from the scene?

Canada Geese in the west midlands The Ministry of Agriculture, Fisheries and Food are co-operating with the Wildfowl Trust and local ornithological societies to study the behaviour of Canada Geese in the west midlands; 712 geese have been fitted with unique rings for easy identification on six waters in Staffordshire, and in addition 224 geese on one water have been marked with a special dye. It is hoped that reports of sightings of these specially marked geese will be sent to MAFF so that a survey of their movements can be made. Further information and survey forms can be obtained from Miss B. E. Jones, MAFF, Agricultural Development and Advisory Service (ADAS), Woodthorne, Wolverhampton, West Midlands WV6 8RQ, to whom sightings should also be reported. (By courtesy—Habitat.)

Dyed waders from Africa The studies of the migration of waders in Africa are still in their infancy when compared with those in north-western Europe. This is partly due to the fact that wader enthusiasts are few and far between, the majority being found in Kenya and South Africa. Also waders are smallish birds and therefore do not lend themselves to high recovery rates, and it is significant that the majority of recoveries are made by other ringers. As a result, the recovery rates of African ringed waders is very low. We therefore know little about the migration routes through Africa and between the African and Palearctic regions. In an attempt to improve our understanding of the migration patterns of waders, large numbers of Knots, Sanderlings and Curlew Sandpipers will be dye-marked in the Cape Province by the Western Cape Wader Study Group in early 1976 before the birds depart for their northward migration.

The Group appeals to all birdwatchers to look out for these marked birds during the spring and autumn passages of 1976. If you do see a marked bird, which should be especially obvious in flight, please contact either A. J. Prater, British Trust for Ornithology, Beech Grove, Tring, Hertfordshire, or Dr R. W. Summers, Percy FitzPatrick Institute of African Ornithology, University of Cape Town, South Africa, giving as many details as possible, including the colour of the dye and its position on the bird.

The scanty ringing evidence suggests that the migration routes of these three species may cross anywhere between western Europe and central Asia, so if you know a site where any of these species occurs on spring (April-May) or autumn (August-October) passage, please keep a special lookout.

3M's Wildlife Sound Recording Contest Top award for the overall winner of this contest, which is open only to British amateur tape recordists, is a Sennheiser MKH 815T transistorised condenser gun microphone, together with power pack and accessories, donated by Hayden Laboratories. New to the competition are special awards for cassette recordings and stereo entries: a Wollensak 4766E hi-fi

cassette deck with Dolby noise reduction circuitry (recommended price £288) goes to the entrant submitting the best entry made on a cassette machine, and a pair of Monitor MA5 Series II speakers will go to the recordist entering the best stereophonic recording. In addition, a Grampian parabolic reflector with DP6 microphone, and a pair of Rotel stereo headphones, will be awarded for the most original recording. There is no entry fee, and copies of the rules and entry forms — together with hints on wildlife recording by lecturer, author and international recording contest winner Richard Margoschis — are available from Bill Bowles, Public Relations Executive, 3M United Kingdom Ltd, 380 Harrow Road, London W9 3HU. Closing date for receipt of entries is 31st March 1976.

Further New Year Honours In addition to those mentioned in the last 'News and comment', Ivan Hills has been awarded the OBE and Ernest Neal and Neville Whittaker the MBE. Ivan Hills is Chief Land Agent of the National Trust; many Trust properties hold great ornithological interest, and Ivan himself has been a very keen birdwatcher for many years. Ernest Neal's name has been associated with Badgers but he has also been a leader in conservation in Somerset. Neville Whittaker must, as the Manager of the RSPCA's hostel at Heathrow airport, have one of the most heart-breaking tasks, seeing as he does so much death and suffering among imported birds; all who have seen the work he has done will be particularly pleased at this award.

Final comment The title of a paper in the December 1975 issue of the Bulletin of the BOC reads: 'The first records of the Mongolian Plover, *Charadrius mongolus* Pallas, for Mongolia'. Perhaps there is some hope for the Loch Ness Monster.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

September and October reports *D. A. Christie*

The weather in early September was mainly anticyclonic but an airstream from the west and south-west took over, being particularly prominent from mid-month with gale force winds on several occasions. In October the picture changed, with many warm, dry days as an anticyclone established itself over the Baltic region, this allowing easy immigration of eastern species. Depressions from the Atlantic followed at the very end of the month. The two months were notable for the unprecedented arrival of vagrants, from both the west and the east.

ALBATROSSES, SHEARWATERS, SKUAS, GULLS AND TERNS

A Little Grebe *Tachybaptus ruficollis* on Fair Isle (Shetland) on 19th and 20th October was the first record for the island since 1970. An unidentified **albatross** *Diomedea* sp was noted off Cemaes Head (Dyfed) about 3rd September (another also reported about 20th August). The only report of a **Great Shearwater** *Puffinus gravis* was of one between Lands End and Scilly on 6th September, and similarly the one report of **Balearics** *P. puffinus mauretanicus* concerned three flying south off the Calf of Man on 23rd. As many as eleven **Cory's Shearwaters** *Calonectris diomedea* were seen in the Irish Sea off Dyfed on 4th of that month. **Sooty Shearwaters** *P. griseus* were more numerous: we received records from eleven places, almost all on the east coast, and passage was most heavy from about the middle of September with several counts of double figures; by far the highest number was seen at Spurn (Humberside) where 240 were noted on 14th; in October there

were only four reports, a total of ten or so birds, the last at Fair Isle on 28th.

Four **Long-tailed Skuas** *Stercorarius longicaudus* were reported during September, and a late single was seen off Unst (Shetland) on 28th October. Vagrant gulls from the Nearctic involved a **Bonaparte's** *Larus philadelphia* in Claggain Bay (Strathclyde) on 12th September and a **Laughing Gull** *L. atricilla* at Fair Isle the next day. **Sabine's Gulls** *L. sabini* were more common than usual, with eight September records and six October: again the east coast was favoured, 14 birds being seen, while one was well up the River Thames at West Thurrock on 7th September; on the south coast two were in Rye Bay (East Sussex) on 28th of the month, when one was also found in the west off Bardsey (Gwynedd). Rarer European terns were few: a **Gull-billed** *Gelochelidon nilotica* at Boston Point (Lincolnshire) on 7th September, and **White-winged Black** *Chlidonias leucopterus* at four places: Covenham Reservoir (Lincolnshire) on 2nd September, Laugharne (Dyfed) on 6th, Heysham (Lancashire) on 12th and 13th, and Dungeness (Kent) from 24th to 4th October.

HERONS, STORKS AND SPOONBILLS

The only **Purple Herons** *Ardea purpurea* in the period were one at Flamborough (Humberside) on 10th October and one between Lands End and Scilly on the last day of October, while no **Little Egrets** *Egretta garzetta* were reported at all. A **Night Heron** *Nycticorax nycticorax* was at Rye Harbour from 2nd to 4th September. On 24th September a **White Stork** *Ciconia ciconia* bearing a Heligoland ring was found injured (believed shot) at Pendine (Dyfed), and there was a report of a **Black Stork** *C. nigra* inland from Littlehampton (West Sussex) on 11th. The only information which reached us concerning **Spoonbills** *Platalea leucorodia* was a sighting of one in Southampton Water (Hampshire) on 18th October.

WILDFOWL

A pair of **American Wigeon** *Anas americana* in Surrey Docks early in September were thought to have been escapes from captivity. More likely to be genuine vagrants were several **Surf Scoters** *Melanitta perspicillata* and **King Eiders** *Somateria spectabilis*: singles of the former were found at Murcar (Grampian) from 23rd September, in the Tresco area of Scilly from 5th October and in Burghhead Bay (Grampian) on 26th October; and King Eiders were present at Fair Isle from 8th September to 2nd October, at Murcar from 23rd September and in Loch Fleet (Highland) at the end of October. Two **Ruddy Shelduck** *Tadorna ferruginea* at Whitton Sand on the Humber estuary on 13th and 14th September may possibly have been wild. Almost certainly a wild visitor, a **Red-breasted Goose** *Branta ruficollis* appeared on the Essex marshes towards the end of October with the wintering **Brent Geese** *B. bernicla*, and what must surely have been the same individual later turned up, again with the Brents (which move from Essex to the south coast), at Langstone Harbour (Hampshire) in November.

RAPTORS TO BUSTARDS

The only **Rough-legged Buzzards** *Buteo lagopus* brought to our notice were at Upper Derwentdale (South Yorkshire) on 11th and 12th October (one, possibly two birds), at Worth marshes (Kent) on 14th and at Cley (Norfolk) on 19th, while a **Steppe Buzzard** *B. buteo vulpinus* was at St Ives (Cornwall) on 27th October and 2nd November. There were two sightings of **Red Kites** *Milvus milvus*, singles at Warsop (Nottinghamshire) on 20th September (flying north-west) and at Lizard (Cornwall) on 31st October. There were eight reports of **Ospreys** *Pandion haliaetus*, five of them inland and including the latest, at Pembury (Kent) on 6th October. **Spotted Crakes** *Porzana porzana* continued to show themselves and one on Fair Isle on 2nd October coincided with an arrival of **Water Rails** *Rallus aquaticus*, while several were noted in Scilly during the same month. Single **Corncrakes**

Crex crex appeared on Bardsey on 26th September and on Skokholm (Dyfed) the following day, and one was seen at Rye Harbour on 12th of the month. Of the many vagrants during the two months summarised a **Little Bustard** *Otis tetrax* was one of a number which appeared in Seilly, this bird on St Agnes on 29th October and on St Mary's on 2nd and 3rd November.

VAGRANT WADERS

Palearctic

Great Snipes *Gallinago media* were discovered at Sevenoaks (Kent) on 3rd September (staying until 15th) and at Crabley Creek (Humberside) on 6th. A **Sociable Plover** *Vanellus gregarius* was watched by many at Langton Herring (Dorset) during its stay of several weeks from 28th September. On the south coast a **pratin-cole** *Glareola* sp was identified at Selsey Bill (West Sussex) on 3rd September, though it could not be assigned to a particular species.

Nearctic

No fewer than 15 species of Nearctic waders were reported during September and October. In a short summary it is simplest to list these in systematic order, beginning with a **Killdeer** *Charadrius vociferus* which arrived at Eye Brook Reservoir (Leicestershire) on the last day of September and stayed until 19th October; it was later relocated at Swithlands Reservoir in the same county on 2nd November, where it remained until 16th November, and one may speculate whether a Killdeer on Thorne Moors (Humberside) on 29th and 30th November was the same individual. **Lesser Golden Plovers** *Pluvialis dominica*, some perhaps of Asian origin, were seen at Bempton (Humberside) on 1st September, at Stithians Reservoir (Cornwall) from 2nd (two), at Cudrose, Helston (also Cornwall), on 19th, and at Siblybaek Reservoir (again Cornwall) on 26th. Four reports of **dowitchers** *Limnodromus* sp reached us: at Keyhaven marshes (Hampshire) from 20th September, on Jersey (Channel Islands) from 21st to 24th, on St Mary's (Seilly) from 5th to 13th October and at Stithians Reservoir on 14th (two); apart from the Jersey bird, all were identified as **Long-billed** *L. scolopaceus*. An **Upland Sandpiper** *Bartramia longicauda* appeared at Dale Aerodrome (Dyfed) on 1st September and another arrived on Fair Isle on 25th September, a **Solitary Sandpiper** *Tringa solitaria* was on Tresco on 12th September, and a **Spotted Sandpiper** *T. macularia* in the Dovey estuary (Dyfed/Gwynedd) from 9th October until 20th November. Two **Greater Yellowlegs** *T. melanoleuca* reached Britain in September, at Treseo from 3rd to 6th (when found dead) and at Breydon Water (Norfolk) from 8th to 13th; and four **Lesser Yellowlegs** *T. flavipes* turned up, at Washington (Tyne & Wear) during 4th-8th September, at Pwllheli (Gwynedd) on 9th and 10th and at Wick (Highland) on 20th, and at Chlenick Creek, Truro (Cornwall), from 1st to 22nd October.

A **Least Sandpiper** *Calidris minutilla* was found at Brimpton, Newbury (Berkshire), on 11th October. Surprisingly, there were only two reports of **White-rumped Sandpipers** *C. fuscicollis*, both in September, at Washington during 4th-8th and near Kidwelly (Dyfed) from 25th to 27th. With so many Nearctic vagrants it was surprising also that there were not more **Pectoral Sandpipers** *C. melanotos*, just ten at seven localities but including two together at Chew Valley Lake (Avon) at the end of September and beginning of October. A small stint at Hurworth Burn Reservoir (Durham) in the first three days of September caused much argument and was identified as a **Semipalmated Sandpiper** *C. pusilla* by some observers and as a **Red-necked Stint** *C. ruficollis* (from the east Palearctic) by others. A belated report from Stanpit marsh (Dorset) referred to a **Western Sandpiper** *C. mauri* on 24th August. The wader for which the autumn will be remembered was, however, **Buff-breasted Sandpiper** *Tryngites subruficollis*: during August-October reports came in from over 30 places all over Britain and it

would seem likely that more than 50 or so individuals were involved in this massive influx; there were at least eight, and probably more, in Scilly alone while inland odd birds turned up at reservoirs and lakes in widely scattered parts of Britain; although we have no details of Irish records, this must be one of the largest arrivals of an American wader ever recorded in these islands. In contrast there was just one **Wilson's Phalarope** *Phalaropus tricolor* in the period, at Chew Valley Lake from 17th to 20th September.

NEAR-PASSERINE VAGRANTS

From the Palearctic a **Great Spotted Cuckoo** *Clamator glandarius* was reported in Belfast about the end of September; and an **Alpine Swift** *Apus melba* was at Staines Reservoir (Surrey) on 19th September, with another at Dawlish Warren (Devon) on 4th October.

A **Yellow-billed Cuckoo** *Coccyzus americanus* was reported 'somewhere in Ireland' during September, but more specific details were received of a **Black-billed Cuckoo** *C. erythrophthalmus* trapped at Redcar (Cleveland) on 23rd of that month which stayed for the next day. From the middle to the end of the month a **Nighthawk** *Chordeiles minor* was present in the Newlyn area of Cornwall. Another of the remarkable series of American arrivals was a **Yellow-bellied Sapsucker** *Sphyrapicus varius*, a first for Britain if accepted, on Tresco from 26th September until 6th October.

VAGRANT PASSERINES

Nearctic

A quite remarkable influx of American passerines took place which brought many observers to different parts of Britain in the chase to catch up with both the New and Old World species which made the autumn so different from so many preceding ones. Nine individuals of seven species crossed the Atlantic in September and October. First there was a **Rufous-sided Towhee** *Pipilo erythrophthalmus* which was identified at Spurn on 5th September (though it may have been present from 27th August) and which remained until at least the end of November. This was followed by a **Tennessee Warbler** *Vermivora peregrina* on Fair Isle from 6th to 18th, the first for Britain and Ireland if accepted. On 18th a **Bobolink** *Dolichonyx oryzivorus* arrived on Out Skerries (Shetland), and then, incredibly, a second **Tennessee Warbler** was trapped on Fair Isle on 24th. In the last week of September a **Red-eyed Vireo** *Vireo olivaceus* was on Bardsey on 26th and 27th, and a **Black and White Warbler** *Mniotilta varia* stayed on St Mary's from 27th to 30th, while a **Scarlet Tanager** *Piranga olivacea* occupied the same group of islands on Tresco from 27th until 3rd October. In October another **Bobolink** turned up, this one on St Mary's on 9th; and Scilly proved its attraction to American vagrants yet again when a **Blackpoll Warbler** *Dendroica striata* stayed on St Agnes on 19th and 20th, while what was almost certainly the same bird was seen there on 31st and 1st November.

Palearctic

If the invasion of Nearctic passerines was astounding, the number of Palearctic vagrants which reached the shores of Britain was even more noteworthy. Over 40 species were recorded and many individuals were involved, most arriving in October. A **Bimaculated Lark** *Melanocorypha bimaculata* was on St Mary's from 24th to 27th October, the second ever. **Short-toed Larks** *Calandrella cinerea* were found in September at Walberswick (Suffolk) on 7th and on Fair Isle from 21st to 27th; and in October in Scilly during the first half of the month (at least six estimated), on Whalsay (Shetland) on 4th and 5th and 19th, on Fair Isle on 18th and 9th (two, one staying to 14th), on Bardsey from 17th to 19th and at Holme (Norfolk) from 27th until 16th November. A **Crested Lark** *Galerida*

cristata allowed close views at Dungeness (Kent) from 28th September until 1st October, and one was also sighted at nearby Lade on 16th October. A **Black-throated Thrush** *Turdus ruficollis* was reported on St Agnes on 7th October and another was present at Holkham (Norfolk) from 21st to 24th, while in Scotland a **White's Thrush** *Zoothera dauma* arrived on Whalsay on 11th October. On 1st September a **Desert Wheatear** *Oenanthe deserti* was reported at Cley. **Stonechats** *Saxicola torquata* of one of the Siberian forms were described at Holy Island (Northumberland) on 18th October and at Portland (Dorset) on 24th. An immature male **Siberian Rubythroat** *Luscinia calliope* trapped on Fair Isle will be the first British and Irish record if accepted; it was present from 9th to 11th October. **Cetti's Warblers** *Cettia cetti* are now being discovered often enough for their status as vagrants to be fairly ignored: in September birds were found in the usual coastal sites and in October new arrivals were seen at Dungeness on 14th and, most interestingly, on Cape Clear Island (Co. Cork) during 7th-9th. An astonishing influx of **Lanceolated Warblers** *Locustella lanceolata* occurred on Fair Isle in October, when three birds were found on 11th (two trapped), of which one remained to 14th, and yet another was seen on 14th. A **Blyth's Reed Warbler** *Acrocephalus dumetorum* was reported on Tresco from 9th to 12th October. The much more common **Aquatic Warbler** *A. paludicola* was widely scattered on the south coast and at several other places, 15 or more birds altogether including one at Blakeney Point (Norfolk) on 5th and 6th September and a second for the autumn at Kenfig Pool (Mid Glamorgan) on 21st. Late reports were also received of nine trapped during August at Wick Hams (Dorset), where during the same month a **Moustached Warbler** *A. melanopogon* was sighted on the last two days.

A **Siberian Lesser Whitethroat** *Sylvia curruca blythi* stayed at Spurn during the second half of October, and at the same peninsula a **Desert Warbler** *S. nana* which was present from 20th to 24th was trapped. (Interestingly, a Desert Warbler was also trapped in Finland on 17th October.) **Greenish Warblers** *Phylloscopus trochiloides* occurred at Portland on 5th (trapped) and 13th September, and at Dungeness on 20th (trapped), and in October on St Mary's and Tresco, both on 14th, and at St Just (Cornwall) on 28th. **Bonelli's Warblers** *P. bonelli* were reported in September from St Agnes on 2nd and Holkham on 9th, and another late notification was of an immature trapped at Hengistbury Head (Dorset) on 23rd and 24th August. There were only two reports of **Arctic Warblers** *P. borealis*, both in October, at Ythan (Grampian) on 12th and on St. Agnes from 23rd to 27th (two).

The autumn of 1974 was without precedent as far as **Pallas's Warblers** *P. proregulus* were concerned, but 1975 bettered it without a doubt. At least 30 individuals arrived in Britain, from Fair Isle to Scilly, the first on Fair Isle on 10th October and the last reported at Flamborough on 10th November; at Spurn three were trapped between 14th and 19th and at Sandwich Bay (Kent) at least four birds arrived between 11th and 24th. From the same part of Asia **Dusky Warblers** *P. fuscatus* and **Radde's Warblers** *P. schwarzi* reached Norfolk: the former were found at Wells from 14th to 16th October and at Blakeney Point for several days until 18th; and Radde's at Brancaster on 17th and at Holkham from 17th to 26th and another there for a few days from 25th. It is in addition worth mentioning here that **Yellow-browed Warblers** *P. inornatus* also appeared in abnormally large numbers from the end of September onwards: five were on Fair Isle on the last day of September (an early date for so many) and three others were seen elsewhere at the end of the month, then in October a huge arrival took place, mainly on the east coast, when in the region of 100 individuals were noted; maximum counts were 15 in the Wells/Holkham area on 12th and at least 19 in Scilly during the month.

The first **Richard's Pipits** *Anthus novaeseelandiae* were recorded at the end of September, in Scilly, at Spurn and at Swinister (Shetland), then at eleven localities

in October, including an unusual inland record at Cheddar Reservoir (Somerset) on 20th; only a dozen or so birds were reported though there were accounts of 'many' in Scilly during the first half of the month. The last comment was also applied to **Tawny Pipits** *A. campestris* in the same area, but elsewhere only about eight were brought to our notice, including three at Beachy Head (East Sussex) on 17th September. The rarer pipits were an **Olive-backed** *A. hodgsoni* at Wells on 10th October, a **Pechora Pipit** *A. gustavi* on Fair Isle on the same date, and **Red-throated** *A. cervinus* on Fair Isle from 8th to 17th, 20th to 25th and on 26th and 27th September, on Out Skerries from 14th to 18th September, and in October on St Mary's from 10th, on St Agnes on 11th (two), and at Hauxley (Northumberland) from 16th. **Citrine Wagtails** *Motacilla citreola* made appearances on Fair Isle from 7th to 18th September and on Whalsay on 16th, and at Tynningham (Lothian) on 11th October.

A **Lesser Grey Shrike** *Lanius minor* was found dead near Belford (Northumberland) on 20th September and there were four October reports, at Urafirth (Shetland) in the first week, at Ferryside (Dyfed) on 13th, at Saltfleetby (Lincolnshire) on 19th and at Holme from 25th until 3rd November. An **Isabelline Shrike** *L. collurio isabellinus* was also reported, at Holkham from 12th to 14th October, but there were only two **Woodchat Shrikes** *L. senator*, an adult on St Mary's on 9th October and an immature there the next day. **Rose-coloured Starlings** *Sturnus roseus* also turned up in Scilly in October, on St Martin's from 3rd to 6th and on St Mary's from 13th to 17th (both immatures).

Several **Arctic Redpolls** *Acanthis hornemauni* were reported in October, during an invasion of **Mealy Redpolls** *A. flammea* which will be summarised later. Arctic Redpolls were trapped on Fair Isle and at North Ronaldsay (Orkney), while others showing the characters of this species were seen at Flamborough, Spurn and Saltfleet (Humberside). From the south **Serins** *Serinus serinus* arrived at Tetney Haven (Lincolnshire) on 9th October, at Stiffkey (Norfolk) on 25th and at Porthgwarra (Cornwall) on 26th. The highest number of **Scarlet Rosefinches** *Carpodacus erythrinus* on any one day at Fair Isle was four on 7th September and the last there was on 24th October, while very few were found elsewhere. **Rustic Buntings** *Emberiza rustica* were recorded on St Martin's on 5th October, on Fair Isle from 10th to 25th, at Blyth (Northumberland) on 15th and 16th and at Cley (two) from 18th to 22nd. The only September occurrence of **Little Bunting** *E. pusilla* was on Fair Isle on 29th, staying to 1st October, and the island played host to further birds from 10th to 16th (two), on 19th and from 22nd to 25th; other October records came from Fingringhoe Wick (Essex) on 1st, St Martin's from 6th, Lundy (Devon) on 12th and 13th and Tresco on 15th and 16th. Predictably, the last word belongs to Fair Isle, which held a **Yellow-breasted Bunting** *E. aureola* from 7th to 18th September and a different individual on the last two days, though another possible first for Britain and Ireland was reported at Holkham on 19th October, a **Yellow-browed Bunting** *E. chrysophrys*.

SCARCE MIGRANTS

Very surprisingly, there were no **Hoopoes** *Upupa epops* reported during September and only one in October, on Fair Isle on 24th. In the last week of October a **Golden Oriole** *Oriolus oriolus* was reported at Hartlip (Kent). Twelve **Blue-throats** *Luscinia svecica* were found in September, only one away from the east coast at Sturt (Avon) on 17th, and six more turned up in October in Scotland and at Spurn; also at Spurn there were singles on 9th November and from 16th to 18th. A **Melodious Warbler** *Hippolais polyglotta* was seen on Bardsey on 9th September and another on Skokholm from 22nd to 26th. A total of eleven **Icterine Warblers** *H. icterina* was not very impressive: away from the east coast there were singles on Lundy on 7th and from 11th to 15th, and on Fair Isle one on 8th October was the latest ever recorded there. Passage of **Barred Warblers** *Sylvia nisoria* was

good, over 70 individuals including eight in the west; up to eight were on Fair Isle in the first ten days of September, and the last singles were on 12th October, on Fair Isle and at Spurn. About 40 **Red-breasted Flycatchers** *Ficedula parva* were recorded up to 27th October when one was on Lundy; many arrived during the east coast 'fall' in mid-October. **Ortolan Buntings** *Emberiza hortulana* were more numerous than in recent years with seven in September including four at Sandwich Bay from 28th, and singles in October on Tresco on 17th and at Spurn on 19th.

MISCELLANEOUS

Several species do not fit easily into the above categories. **Grey Phalaropes** *Phalaropus fulicarius* were found at Blakeney Point on 14th September, at All-hallows (Kent) on 21st and at Pennington marshes (Hampshire) on 28th, and inland at Bough Beech Reservoir (also Kent) on 12th October. A **Woodlark** *Lullula arborea* was at Sandwich Bay on 20th September, and in October one was at Eye Brook Reservoir (date unspecified) and others occurred at Dungeness on 14th, 18th, 19th and 23rd, at Spurn on 17th, and at Portland on 26th (three).

12-12-1975
- RICHARDS

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British Birds

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Raptor migration across the Strait of Gibraltar

*J. C. Finlayson, E. F. J. Garcia, M. A. Mosquera and
W. R. P. Bourne*

The concentrations of large soaring birds at short sea crossings when on migration have long been recognised as being among the most spectacular ornithological phenomena. These birds rely to a large extent on upcurrents, either thermal or relief-induced, to obtain lift. Therefore they tend to avoid long sea crossings where such updraughts are lacking.

In Europe large concentrations of soaring birds are known to occur annually in several localities, notably at Falsterbo in southern Sweden, the Bosphorus and the Strait of Gibraltar. The situation at the last locality (fig. 1) has been discussed by Bernis (1973), whose account agrees with long-standing local opinion that the migration is usually most obvious at the down-wind end of the Strait. Simultaneously Evans and Lathbury (1973) concluded that visible movements are but a fraction of the total migration on each day, that the absence of records with east winds at Gibraltar, at the east end of the Strait, results from the birds' passing too high to be seen from the ground, and that the numbers observed are dependent on the types of upcurrents of air formed with different wind conditions.

The first three authors of this paper, who supplied data to Evans and Lathbury, were not entirely satisfied with their conclusions, which were based on largely unpublished radar observations (Houghton 1970). They consulted WRPB, who had already published some contradictory observations made with radar at Gibraltar in autumn 1964 (Bourne and Norris 1966), and discovered that he had similar reservations. The full resolution of this disagreement clearly depends on the publication of the controversial radar

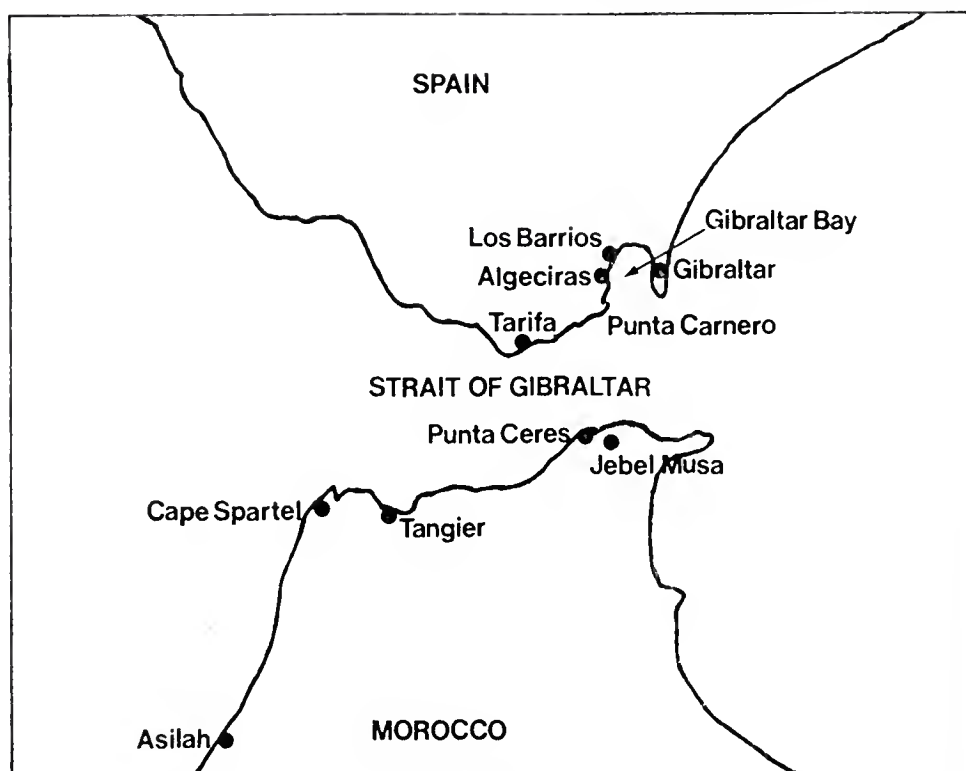


Fig. 1. Strait of Gibraltar showing localities mentioned in the text

observations, which we understand have already been modified (Houghton 1973) although they will not be completed until 1976. Meanwhile it may be useful to set out the conventional interpretation of migration at Gibraltar again and list a number of questions which need to be answered about the recent radar investigations.

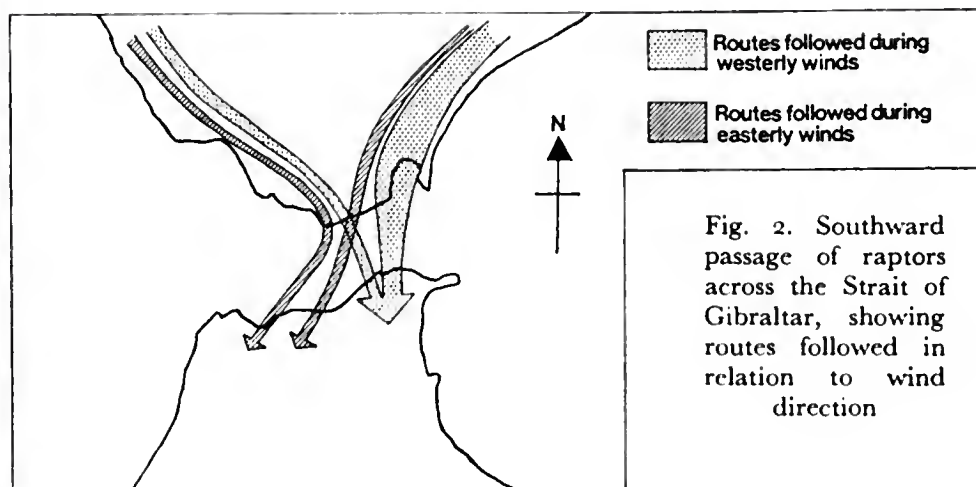
THE PATTERN OF MIGRATION AS OBSERVED FROM THE GROUND

Inland, soaring birds can be seen to migrate in loose parties on a broad front. As they approach the Strait they soar along the windward slopes of the hills until they are funnelled to the shortest sea crossing. Visual observations from all parts of the area indicate that the largest numbers of birds are seen behind the down-wind coasts leading to the Strait (Bernis 1973, Pineau and Giraud-Audine 1974). The precise routes followed by different populations at different seasons appear to be as follows.

1. *Southward passage*

(a) *Continental migrants*. These comprise birds from the area north of the Pyrenees and eastern Spain. They include great numbers of Black Kites *Milvus migrans* and the vast majority of the Honey

Buzzards *Pernis apivorus*. They approach the Strait from the north-east. When it is calm, or the wind is light, they maintain a steady south-west heading, bypassing Gibraltar inland to the vicinity of Tarifa, where they cross the Strait to Africa by the shortest route, 15 km, as in fig. 2. With moderate to fresh westerly winds an



increasing number drift east and cross the eastern end of the Strait in the vicinity of Gibraltar. With east winds they continue to the Tarifa area and depart there and further west to enter Africa over Tangier.

(b) *West and central Iberian migrants*. These include a considerable number of Black Kites and the majority of the Short-toed Eagles *Circus gallicus*, Booted Eagles *Hieraaetus pennatus* and Egyptian Vultures *Neophron percnopterus*. Such populations fly south or south-east towards the Tarifa area in calm weather, as in fig. 2. With fresh westerly winds they drift east, but seldom as far as Gibraltar, where Short-toed Eagles, for example, are scarce at this season. They arrive in Africa east of Punta Ceres in proportion to the strength of the wind. With easterly winds departures occur west of Tarifa and arrivals along the opposite shore are a variable distance west of Punta Ceres, according to the strength of the wind (Pineau and Giraud-Audine 1974).

The pattern is sometimes disturbed after periods of prolonged east winds when a coasting movement into the wind may bring numbers of raptors to Gibraltar. This movement has been observed in progress along the Spanish shore of the Strait during the southward migration in autumn (Bernis 1973) and along the Moroccan shore during the northward migration in spring (Pineau and Giraud-Audine 1974), with fresh easterly winds in both cases. It has been explained by Evans and Lathbury (1973) as due to the

easterly heading adopted by west Iberian birds, but if this were so it seems likely that they would be commoner with west winds than with easterlies. It seems more probable that the birds are reluctant to set out across the Strait with east winds liable to blow them out into the Atlantic, and continue along the shore in search of a resting place instead. Many species may reach Gibraltar under these conditions but Booted Eagles often predominate; possibly since they are strong fliers they find it easier to make headway against contrary east winds than the larger soaring species such as the Short-toed Eagle. The birds arriving with east winds nearly always turn back north or north-west after lingering briefly, though some occasionally set out across the Strait to the south, especially when the east wind is diminishing.

2. *Northward passage*

Soaring birds are particularly exposed to drift while crossing the sea, since they have no opportunity to compensate for it by soaring in updraughts and then gliding into the wind in the way possible over land. It is therefore not surprising that the effect of the wind on the routes followed is more obvious along the north shore of the Strait in the spring than the autumn, as shown in fig. 3. The

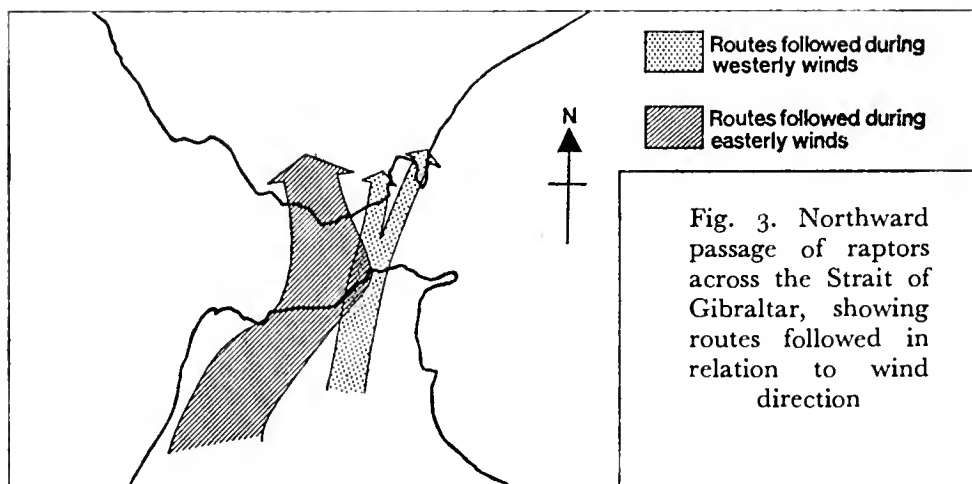


Fig. 3. Northward passage of raptors across the Strait of Gibraltar, showing routes followed in relation to wind direction

appearance of raptors at Gibraltar with east winds is now exceptional. Conversely, fresh or strong west winds now bring large numbers to the Rock, and Short-toed Eagles become common there when they were rare in the autumn. This suggests that, being large and ponderous fliers, they are especially prone to drift when over the open sea, and helps to explain their reluctance to move with unfavourable winds in the autumn.

INTERPRETATION OF VISIBLE MIGRATION

We consider that the appearance of the largest visible migrations at the down-wind end of the Strait is due to the accumulation of birds drifted down-wind over land along the coastal guiding-lines leading to these areas, and further drift of birds crossing the Strait before they reach the far shore. This is not necessarily a passive process; it is possible that the birds deliberately allow themselves to drift a certain amount to secure the most economical passage across the Strait, though involuntary drift doubtless also occurs with strong winds. Evans and Lathbury (1973) considered instead that birds must pass over at least Gibraltar at the east end of the Strait with all wind conditions but that they are visible from the ground only with westerlies, because with easterlies they soar high over the Rock, where the wind from the sea is directed upwards by its vertical east face in a 'standing wave'.

There are several disadvantages to this last hypothesis. In the first place, if many birds are normally passing over the area, they should appear when the weather is calm and 'standing waves' break down, but they are not noticeable then. Secondly, the Rock is an isolated massif so that if birds gather there to soar at least some of them should be seen arriving from the north or south first. In fact, those of us resident at Gibraltar have failed to detect any sign of such a movement in ten years, with the exception of the coasting movement of Booted Eagles mentioned above.

Evans and Lathbury (1973) gave several instances of raptors appearing over Gibraltar in the spring when the surface winds were easterly but the upper winds were westerly, and explained their presence as the result of lulls in the easterly airflow. Casement (1966) has already remarked that the wind is exceptionally variable in the vicinity of the Strait, so that too much faith should not be placed in local meteorological records. However, if they are reliable, these isolated events can also be interpreted differently. The birds could have soared high over Morocco until they reached the westerly airflow, drifted out to sea to the east with it, and then lost height until they descended into the easterly winds as they approached Gibraltar.

Specific observations

WRPB (in Bourne and Norris 1966) visited Gibraltar airfield during a period of sustained light easterly winds between 7th and 12th September 1964. On the morning of 8th September it was possible to see the main raptor movement passing south-west along the slopes of the hills inland, both through binoculars and on the unsatisfactory airport radar. F. G. H. Allen (who lives immediately below the flyline at Los Barrios), and other local witnesses, confirmed

that the birds were Honey Buzzards which were crossing the Strait near Tarifa throughout this period, when none was seen over Gibraltar. Thousands were observed to come in low across the Strait from the direction of Tarifa and soar rapidly out of sight as they passed inland at Tangier on the opposite side of the Strait on the morning of the 11th, while 243 Honey Buzzards were seen flying south across the Strait from Tarifa while WRPB was sailing west through the Strait next day.

Similarly, when EFJG crossed the Strait between Gibraltar and Tangier with east winds on 3rd and 4th September 1973, no raptors were seen at Gibraltar or anywhere east of Tarifa on either day. However, flocks of Honey Buzzards were seen flying south from Tarifa and arriving at Tangier on the first day, and over 2,000 appeared between Tangier and Cape Spartel to the west in two hours around noon on the second day. They approached Tangier from the north-west, which suggests that they must have drifted west while crossing the Strait and then turned to head for land. This suggestion was confirmed by Giraud-Audine (in Pineau and Giraud-Audine 1974), who saw hundreds of Honey Buzzards make a landfall along the Atlantic coast of Morocco between Tangier and Asilah 40 km further south with force 6 east winds on 2nd September 1973.

We are puzzled by the statement by Evans and Lathbury (1973: 578) that 'Honey Buzzards are scarce at Tangier at both migration seasons'. We find it an exceptionally good place to observe them when the wind is in the east, and these authors postulated that they are soaring over the Rock of Gibraltar too high to be seen.

The converse situation, with fresh west winds, occurred on 4th September 1972 and 31st August and 9th September 1974, when large numbers of Honey Buzzards arrived over Gibraltar from the north-east and flew south along the Rock. On the second occasion some passed to the east of the Rock, a frequent occurrence with fresh westerlies, and on the third some passed to the west. When the west wind began to slacken on 5th September 1972 the birds which had been passing over the Rock the previous day began to cross the Strait further west, though still east of Tarifa. With light west winds on 15th September 1974 some flocks, possibly the fringe of the main stream, were seen flying south-west towards Tarifa over the hills inland, but none crossed the Rock until the wind strengthened during the afternoon, and then 3,600 passed during the evening. Another 5,000 Honey Buzzards, which must have roosted nearby, also passed south-west over Gibraltar as the wind died away between 07.00 and 08.00 hours the following morning, travelling progressively further inland as it fell so that the last were seen about 08.50 hours. By 11.00 hours the wind had changed to east.

Similar examples can be quoted for the spring. For example, no soaring birds were seen around Gibraltar while east winds prevailed from 7th to 11th March 1973, though northward passage was noticed along the hills north of Tarifa at the other end of the Strait on the first day. On 10th a limited number of Black Kites, Short-toed Eagles and Marsh Harriers *Circus aeruginosus* were also seen moving north up the Atlantic coast of Morocco and out to sea at Cape Spartel west of Tangier. Then when the wind changed to west a strong passage occurred over Gibraltar from 12th to 14th March. This included 3,000 Black Kites and 300 Short-toed Eagles on the second day, when the birds arrived low over Europa Point from the south and soared north in the standing wave over the Rock, in exactly the way postulated to occur with east winds by Evans and Lathbury (1973). When WRPB sailed east through the Strait the following day he saw another 107 birds crossing the narrows from Jebel Musa to Punta Carnero between 13.30 and 14.00 hours. This is the time when they usually fly highest, yet they could still be located and identified with ease, and it seems doubtful if many high-flying birds were missed.

ALTITUDE OF MIGRATION

Observations at Gibraltar suggest that the altitude at which raptors fly shows a regular daily rhythm during the southward migration but less fluctuation during the northward. Southbound birds arrive at Gibraltar below 300 metres from sunrise until about 10.00 hours, appearing later as the season advances. They arrive higher as thermals develop later in the day, so that between 12.00 and 16.00 hours they may be difficult to see at all early in the season, though after mid-September the weather is cooler and they seldom rise so high. The birds descend later in the day and the passage ends about an hour before sunset, when they seek roost sites.

Northbound birds usually lose height crossing the Strait and arrive below 100 metres. During the afternoon they may come in higher when they have made use of thermals which have formed over the land and drifted out to sea. While they may well start to move over Morocco at sunrise, it takes them some time to gain altitude and find their way across the Strait, and they do not appear over Gibraltar until at least a couple of hours later. Birds which have left Africa during the afternoon may continue to arrive over Gibraltar until dusk at this season.

It is difficult to correlate the morning radar observations of 'presumed raptors' reported by Houghton (1970) with this pattern. It is contrary to anything known by direct observation of the behaviour of soaring birds for them to have first gained height and then crossed a wide expanse of sea to arrive in Gibraltar early

in the day too high to be seen, as postulated by Evans and Lathbury (1973). On the other hand, this agrees well with WRPB's experience of some water birds, such as herons, in Cyprus. Likewise, the appearance of low-flying raptors later in the day, which Evans and Lathbury (1973) apparently interpreted as the descent of birds which flew high earlier, seems more easily explained as the normal arrival of birds which had been unable to maintain their altitude during a difficult sea passage.

We note that, in his latest report, Houghton (1973) said little about the time of day at which birds were observed with radar to be travelling at different altitudes, and indeed that he appeared to interpret the pattern of movement largely as we do, as the result of a varying amount of drift by beam winds.

RADAR OBSERVATIONS

The interpretation of the migration of soaring birds across the Strait of Gibraltar put forward by Evans and Lathbury (1973) appears to differ from the locally accepted view, both as the result of the misinterpretation of limited observations in the immediate vicinity of the Rock, with which some of the participants disagree, and as a result of deductions from provisional reports of inaccessible radar observations in departmental memoranda that have already been modified. Until full information about the radar observations is made available it is difficult to disprove Evans and Lathbury's hypothesis that a substantial amount of raptor migration is passing the Rock too high to be seen. Meanwhile the information already available provokes a number of questions which it is hoped will be answered in the final report on the radar observations, as follows.

1. Identity of the birds seen with radar

The radar study was originally mounted at the request of NATO to provide advance warning of the arrival of migrating Cranes *Grus grus* across the Strait since they present a hazard to aircraft further north, though in point of fact it was already known that Cranes winter in western Spain (Bernis 1960) and are rarely seen around Gibraltar. While it is comprehensible that the attention of the observers was soon diverted to the large raptors which are the most conspicuous migrants actually visible at Gibraltar, it remains doubtful whether they are the only large birds crossing the east end of the Strait, since pilots have reported the occurrence of a wider variety of species at higher levels (Bourne and Norris 1966). The identity of the higher-flying birds seen with radar therefore remains debatable. While Houghton (1964, 1973) suggested that their identification is possible from their flight and signal characteristics, Emlen (1974) reported that these are in fact so variable that they

provide only a crude guide to the identity of birds of different sizes. Therefore it still remains unclear how those of the same size are being separated, and how the identity of the highest-flying ones critical for the present discussion is being confirmed. They seem likely to include high-flying shore- and waterbirds, which are always difficult to see from the ground, as well as raptors.

2. Field of view

Any radar has a limited field of view, determined by the curvature of the earth, by the local topography, which is rugged around Gibraltar, and by variations in the propagation of the signal, which are particularly marked in warm climates. Low-flying birds are usually difficult to detect, especially among broken terrain which gives rise to irregular ground returns and obstructs the view, whereas high-flying birds may show up better, especially beyond the horizon where the radar beam rises above the earth and there are no longer ground returns. Thus it seems desirable that we should be supplied with much more information about what can be seen with radar from Gibraltar before drawing conclusions about the birds detected there. It seems likely to give a better view of birds crossing the eastern part of the Strait than of those bypassing it inland to cross further west.

3. Number of birds visible with radar

Single birds or dense flocks may produce similar well-defined signals on the radar screen, while birds in loose formation may be recorded as ill-defined masses of light. While small, high, broad-front movements may be comparatively conspicuous on distant early warning radars, they may be overlooked on airport ground-controlled approach radars, which give a better view of events in the immediate vicinity including large low-level passages. Observations of migration across the entire width of the Strait of Gibraltar during the southward migration of 1972 revealed the passage of some 189,000 raptors, including 114,000 Honey Buzzards and 39,000 Black Kites (Bernis 1973), and it is difficult to believe that many more were passing unseen overhead. On the other hand, few shore- and waterbirds are ever seen on the move there, and while most of the Cranes may winter in western Iberia many other aquatic species are known to migrate to Africa. These must therefore be passing overhead unseen, presumably on a broad front, and seem likely to participate in high-flying passages detected with radar.

4. Timing of migration

While many passerines are known to migrate by night and soaring birds when updraughts are best developed in the middle of the day,

some other species, such as the diurnal passerine migrants and shore- and waterbirds, are known to move at dawn or dusk. So far little precise information has been published about the timing of migration observed with radar at Gibraltar, except that apparently it often disagrees with that of visible raptor migration. It is desirable that more information should be provided about this as well. It seems likely that the passage of many species, or at least larger groups of species, could be identified by the careful consideration of the season and time of day when they passed by.

It is important that more information should be provided about these radar observations. Attempts to assess the numbers of large raptors surviving in western Europe at a time when they are under increasing pressure may depend on an accurate interpretation of the radar data. So does the object of the radar investigation, the safe deployment of aircraft. It might be disastrous if air movements were planned in relation to those of low-flying birds of prey when high-flying waterbirds present a greater hazard. It seems desirable that here, as elsewhere, the information upon which decisions likely to affect public safety may depend is made available for public scrutiny.

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SUMMARY

The view that soaring raptors normally tend to migrate across the down-wind end of the Strait of Gibraltar owing to the influence of drift by the wind from a median path is restated, with some critical observations from both ends of the Strait at both seasons of migration. It is concluded that the suggestion by Evans and Lathbury (1973) that, when raptors are not seen at Gibraltar with easterly winds, it is because they soar above the limit of vision in a 'standing wave' above the Rock is incompatible with the fact that they are not seen to approach the Rock first, whereas they can be seen crossing the opposite end of the Strait at such times. The timing of high-flying movements observed with radar in the early morning seems incompatible with the observed tendency for raptors to soar higher later in the day. It is suggested that there is a need for more information about the field of view obtained with the radar, the timing of the movements observed, and how the birds were identified and enumerated. The critical interpretation of these results seems important because both attempts to assess the number of raptors remaining in western Europe and the safe routing of aircraft depend on them.

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A census of the Gannet nests on Grassholm in 1975

M. S. Cullen and R. Pratt

Plate 9

The history of the increase in the number of nests comprising the colony of Gannets *Sula bassana* on Grassholm is well documented, with records of periodic counts between 1860 and 1969. This short paper gives details of the 1975 count, the method used and certain observations made.

METHOD AND OBSERVATIONS

The 1975 count was made from aerial photographs taken during the 1975 breeding season. These photographs were taken in two series: (a) 7th May, at a height of 500/600 ft (152.40/182.88 metres) and (b) 5th August, at a height of 400 ft (121.92 metres). The May photographs revealed that very few Gannets other than those on nests were present, while the August photographs showed many birds on the eastern fringe of the colony and on the large rock to the south-west of the colony. From examination of the photographs little or no disturbance was caused to the nesting birds by the aircraft used to take the photographs. During the August flight one of us was a passenger in the aircraft and saw that only the birds on the fringe of the colony, and particularly on the south-west rock already mentioned, showed any sign of alarm and took to the air. As the aircraft left the island only some 400+ birds were observed in the air over the colony. During this flight the aircraft circled the colony three times but did not pass directly over it.

On the photograph enlargements used the colony size measured approximately 60 cm × 20 cm. The count was made using a powerful magnifying glass with which nests, and in many instances details of the sitting bird, could easily be identified. Both of us made individual counts on both series of photographs, and when count totals were compared there was a maximum difference between them of 1¼%. Several photographs were examined and notes were taken during visits to the island in order to ascertain the colony nesting area.

RESULT AND COMPARISONS

The total count was 20,370 occupied nests with, we believe and as stated, an element of inaccuracy not exceeding 1¼%. Gannets were first noted nesting on Grassholm in the 1860's, and since then there have been 18 counts, including that in 1975, which have monitored the growth of this colony. These are given in the following summary:

1883	20 pairs	1939	about 6,000 pairs
1890	200+ pairs	1946	about 6,000 pairs
1895	about 300 pairs	1947	about 6,100 pairs
1905	about 300 pairs	1948	7,000 pairs
1914	less than 300 pairs	1949	9,500 pairs \pm 13%
1922	800-1,000 pairs	1956	10,550 pairs
1924	1,800-2,000 pairs	1964	about 15,500 pairs
1933	about 4,750 pairs	1969	16,128 pairs
1937	about 5,000 pairs	1975	20,370 pairs

Since 1949 the rate of growth of this colony (121.4%) is interesting, the colony having experienced two population explosions during this time, as can be seen by comparing the following percentage increases:

1949-1956	14%
1956-1964	48%
1964-1969	4%
1969-1975	26%

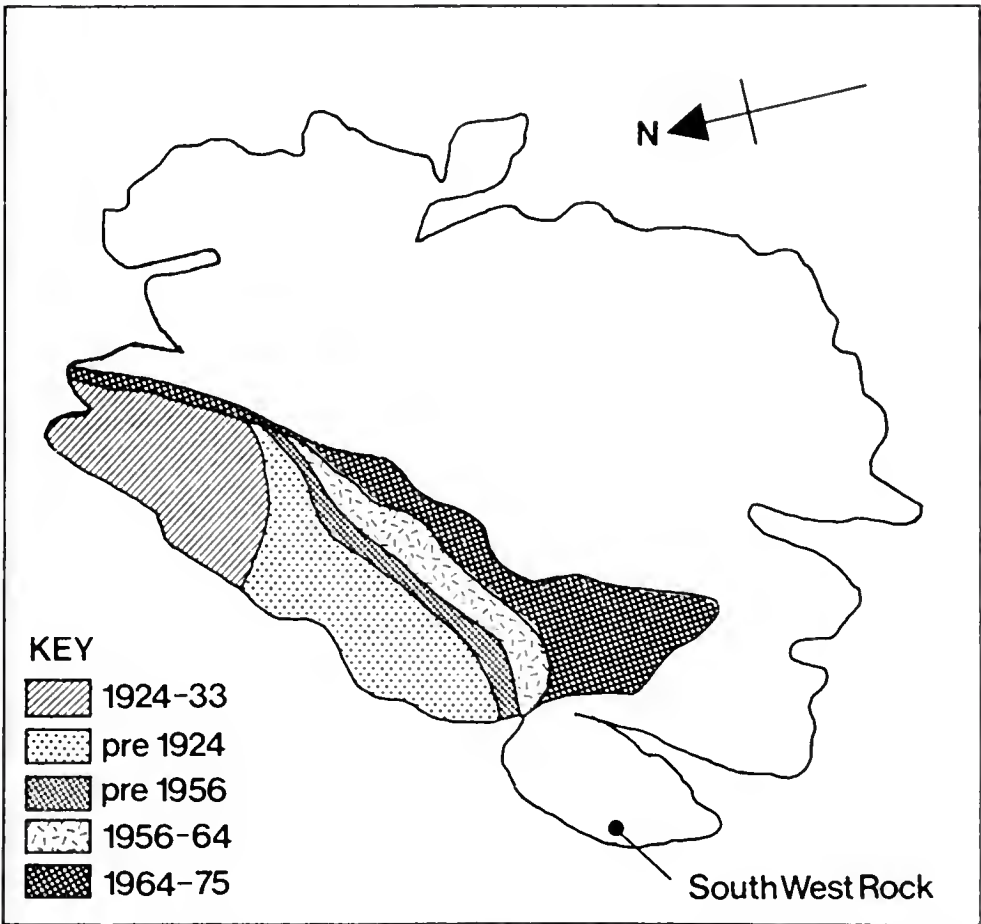


Fig. 1. A diagrammatic representation of the spread of the colony of Gannets *Sula bassana* on Grassholm, Dyfed

Unfortunately we do not know if other colonies have experienced a similar double increase during this period, but at least one major one has occurred in each of the three other major British colonies.

We do not intend to postulate why this growth fluctuation occurs but would draw readers' attention to the similar trends shown by comparing the percentage growth from known figures for the gannetries of St Kilda, Ailsa Craig and Little Skellig during the period 1949-1969/70 (table 1). It can be seen that the fluctuation in the northern colonies is reversed while that of Little Skellig shows a fluctuation similar to that on Grassholm.

The Gannet population of Britain and Ireland increased by 115% between 1949 and 1969/70 (Cramp *et al.* 1974), whilst during the

Table 1. Percentage growth in colonies of Gannets *Sula bassana* during 1949-1969/70

	YEARS 1949-59	YEARS 1959-69/70
Grassholm	14% (1956)	54%
St. Kilda	162%	17%
Ailsa Craig	90%	39%
	1949-66	1966-69/70
Grassholm	69% (1964)	4%
Little Skellig	47.5%	13%

same period the Grassholm population increased by 75%. By comparing the Barrett and Harris (1965) map and photograph showing the spread and extent of the colony it was seen that the colony has extended south beyond the steep ridge mentioned in their text, and also to the north-east of the northern edge of the colony.

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R. Pratt, Ramsey Island, St Davids, Dyfed

Birds in Ireland during 1970-74

M. A. Ogilvie

Plates 10-12

This is the fourth in an irregular series of summaries of observations of Irish birds. The previous three (Andrew 1964, Wallace 1967, Flegg 1971) have set the pattern which this one follows though with two variations. As foreshadowed by Flegg, records of rarities seen in Ireland have, since 1968, been included in the annual 'Report on rare birds in Great Britain' so the complete list of rarities which concluded each of the earlier summaries is here omitted. Instead there is appended a list of the papers which have appeared in the five Reports with brief notes on their contents.

The principal source from which this summary is compiled is, of course, the annual *Irish Bird Report*. Further information has been gleaned from other relevant publications, including the annual reports of the Birds of Estuaries Enquiry and newsletters and other circulated papers of the Irish Wildbird Conservancy.

In the middle of the period under review Major R. F. Rutledge retired from the editorship of the *Irish Bird Report*. He had founded it 19 years before, established it immediately to a high standard, and had maintained it there throughout his long tenure of office. A fitting tribute is paid to him in the introduction to the 1972 *Report*. The daunting task of succeeding him fell to K. Preston and one can state without hesitation that there has been no lowering of standards in either record assessment or quality of the *Reports'* content. Major Rutledge continues as an advisor to the Irish Records Panel.

The co-operation in the vetting and publication of records that existed between the Republic of Ireland and Northern Ireland broke down in 1972 and 1973 but it is a cause for satisfaction that the Introduction to the 1974 *Report* was able to announce that this co-operation had been renewed. The 1974 Systematic List includes a number of 1972 and 1973 records from Northern Ireland.

Irish ornithology took several great strides forward in the late 1960s and early 1970s. The major surveys of different groups of birds, initiated in Britain, were rapidly and successfully adopted in Ireland. 'Operation Seafarer' was inconceivable without coverage of Ireland, and this was practically complete. The full results have, of course, been published (Cramp *et al.* 1974) and little or no mention of them is to be found in the *Irish Bird Reports*, nor will they be discussed in this summary. The British Trust for Ornithology, when it embarked upon its *Atlas of Breeding Birds in Britain and Ireland* (later sponsored jointly with the Irish Wildbird Conservancy), was

not at all hopeful of obtaining sufficiently good quality data for Ireland, but in the event a combination of massive effort by indigenous observers supplemented by British birdwatchers taking holidays carefully directed by the Atlas organiser ensured a remarkably high degree of coverage. The *Irish Bird Reports* for 1972 and 1973 each include a number of provisional *Atlas* maps, and these are commented upon later in this summary.

Irish birdwatchers have been partaking in the Wildfowl Trust's wildfowl count scheme for some years, though in a somewhat random fashion and with no local organisation. Since 1971/72 however, the IWC has been organising systematic monthly counts not only of wildfowl but also of waders, having joined wholeheartedly in the Birds of Estuaries Enquiry, which is run jointly by the BTO, the Royal Society for the Protection of Birds, and the Wildfowl Trust. By combining knowledge of both coastal and inland wetlands they have managed, within a very short space of time, to produce some good estimates of the numbers of the different species wintering in Ireland and a list of the most important sites for the various species. It is recognised that some of the figures may have to be modified in future, and that Ireland's true value to wintering birds cannot properly be assessed until there is another severe winter. However, within three years of starting these counts, the IWC was able to produce a report pinpointing the really important sites and species and to put forward proposals for their conservation (Hutchinson 1974).

BREEDING AND SUMMERING BIRDS

In 1972 the five years of survey for the *Atlas of Breeding Birds* were completed. With admirable promptitude the *Irish Bird Reports* for 1972 and 1973 each contain provisional maps for 14 species. Interpretative comments are provided and, perhaps not unexpectedly, these reveal that for a number of species the *Atlas* results were pleasantly surprising with a denser and more widespread distribution than had been previously suspected. For many others, though, the picture shown by the *Atlas* map was close to the known situation. Caution is advocated for some of the declining species because an apparent widespread distribution may be the result of the minimum of just one pair in each 10 km square.

In four of the five years covered by this summary Red-throated Divers *Gavia stellata* bred at two sites in Co. Donegal, while birds were present at a third, undisclosed site in 1971. Great Crested Grebes *Podiceps cristatus* have a predominantly north and west distribution in Ireland, as shown by the *Atlas* map, with few breeding records south and east of a line from Carlingford Lough to the Shannon estuary. However, there has been recent colonisation in

Co. Cork and on the Wexford Slobs, while steady increases are reported for a number of areas within the species' main range.

Proven breeding is particularly difficult to establish for many duck species and the maps for Shoveler *Anas clypeata* and Pochard *Aythya ferina* should be treated with some caution. The former shows scattered breeding in several localities from the north-east through the midlands to the west coast, while the latter is now a regular breeder in small numbers in the midlands but rather sporadic elsewhere. Among rarer breeding ducks the Gadwall *Anas strepera* bred on the Wexford Slobs for the first time in 1970 and probably each year since, while the Tufted Duck *Aythya fuligula* almost certainly bred on the South Slob in 1970, and extended its range into Co. Waterford in 1974. A pair of Shelduck *Tadorna tadorna* bred 27 km inland in Co. Wicklow in 1972. The *Atlas* map for the Eider *Somateria mollissima* demonstrates the restricted range of this species, confined as it is to the coast of Co. Sligo round to the extreme north of Co. Down; numbers have apparently increased in some sites in recent years but there has been little or no range expansion.

Birds of prey present a mixed picture. After many years of decline the Sparrowhawk *Accipiter nisus* was thought to be undergoing a recent recovery and the *Atlas* map gives it a very widespread distribution with breeding proved in nearly 500 squares and suspected in many more. Only the extreme north-west and some southerly areas are without records. A special survey of the Peregrine *Falco peregrinus* in 1970 involved visiting 62 known breeding cliffs. Definite breeding was recorded at only 15 of these and, although one or two birds were present at 30 more sites, 17 were without any at all; additionally, only four sites were known at which there had been successful breeding in every year from 1965 to 1970. In contrast to this rather gloomy picture from the Republic, the population in Northern Ireland has increased from just one breeding pair in 1965 to no less than seven in 1970, with an average brood size of 3.0. The Merlin *F. columbarius* is also provided with a provisional *Atlas* map and, although it is almost certainly under-recorded, there are probably few squares with more than one breeding pair. It is scattered fairly evenly through the country, though with a concentration in Co. Galway. Hen Harriers *Circus cyaneus* continue to increase and spread; the number of counties in which they breed rose from 11 to 13. A pair of Montagu's Harriers *C. pygargus* bred successfully in 1971.

Except in 1970 when Quail *Coturnix coturnix* were recorded as present in unusually large numbers, both that species and Corn-crake *Crex crex* seemed scarce in the early 1970's and the map for Quail shows only 30 occupied squares. Many of the records were

isolated instances with no repetition of breeding in subsequent years. The Corncrake was thought to have recovered a little in 1974 from a low point in 1972 and 1973. The Partridge *Perdix perdix* has suffered a massive decline in Ireland in the last few decades as in England, and the results of the *Atlas* were far more cheerful than had been suspected, with breeding reported widely in the midlands and through much of the eastern half of the country. Nowhere, however, is density great and there is a long way to go before the species is as plentiful as it formerly was.

Maps are produced for four species of waders, Golden Plover *Pluvialis apricaria*, Common Sandpiper *Tringa hypoleucos*, Redshank *T. totanus* and Dunlin *Calidris alpina*. All show a bias towards the north and west but, whereas the Golden Plover is now confined to a very restricted range from Co. Galway to Co. Antrim (having once been much more widespread and plentiful), the Common Sandpiper and Redshank are both comparatively widespread. The latter, however, is thought to be declining at inland sites. The Dunlin was found in more sites than expected but virtually all within the previously known range in the midlands, west and north-west. Among other species of waders, inland breeding of Oystercatchers *Haematopus ostralegus* was reported from Co. Roscommon in 1970.

One of the less happy items is the apparent disappearance of the Red-necked Phalarope *Phalaropus lobatus* from its traditional Irish station in Co. Mayo. It had bred there without interruption for many years, though only two or three pairs each summer. Then in 1967 a sudden increase took place in the number of birds at the site though the number of actual breeding pairs seemed to remain the same. This promising state of affairs continued to 1971 when about 20 birds turned up and three or four pairs bred. Then, without warning, only a few birds were seen in 1972 and there was no breeding, while just one bird arrived and stayed for about ten days in 1973, and none was seen in 1974. It is always a matter for regret when a species ceases to breed in a country even though, as in this case, it is at the extreme edge of a range that, climatically, belongs to a very different region. Notwithstanding the ready-to-hand reasons of climatic amelioration plus the sheer vulnerability of a small isolated breeding colony, and paying no attention to the fact that the extinction of the Red-necked Phalarope from the whole of Britain and Ireland would be a matter of no importance whatsoever for the species as a whole, one ought to be allowed a pang of sadness over the loss of quite such a charming and confiding bird.

Following the example of many English Herring Gulls *Larus argentatus*, those in Ireland are beginning to nest on roofs on buildings, both in Dunmore East, Co. Waterford, where the habit has been known for some years, and in Dublin, where it was first

recorded in 1972. The *Atlas* map of the Common Gull *L. canus* reveals a north and westerly distribution coupled with a marked spread inland in the midlands, and an expansion to the coasts of Co. Kerry in the extreme south-west. 'Operation Seafarer' surveys discovered Roseate Terns *Sterna dougallii* nesting on no less than four islands off the west coast, though only in small numbers compared with the 1,300-1,500 pairs on Tern Island, Co. Wexford, in 1970. In the same year there were 700 pairs of Common Terns *S. hirundo* on the same island.

Before the *Atlas* the Turtle Dove *Streptopelia turtur* was thought to be an extremely irregular breeder but the five-year survey produced four definite and five probable breeding squares plus nearly 20 possibles, though the last may well have included summering, non-breeding birds or even late migrants. Breeding is confined to the east and south, and south-west coasts. Stock Doves *Columba oenas*, also mapped, breed very widely throughout Ireland except in the extreme west and north-west. They are nowhere common. The Collared Dove *Streptopelia decaocto* gets scarcely a mention in the five *Reports* under review, from which it may be assumed that it is now too widespread and numerous to warrant comment.

The *Reports* for 1970 and 1971 remarked on widespread and drastic declines in the status of the Barn Owl *Tyto alba*, but the *Atlas* map published in the 1973 *Report* showed a rather more encouraging picture with breeding records from most coastal and some inland counties, though the species was absent from much of the midlands. However, the comment on the map suggests that many of the squares contain only one breeding pair where they once held many so that, although the overall distribution may still look quite good, the density is only a fraction of what it used to be. Another declining species, the Nightjar *Caprimulgus europaeus*, was probably under-recorded by the *Atlas* but it is now only very locally distributed and much reduced from its former common and widespread status.

The remaining eleven maps refer to passerine species. One of these, the Ring Ouzel *Turdus torquatus*, is definitely in decline; two others, the Garden Warbler *Sylvia borin* and the Twite *Acanthis flavirostris*, have shown little recent change; while all the remainder (Raven *Corvus corax*, Stonechat *Saxicola torquata*, Whinchat *S. rubetra*, Grasshopper Warbler *Locustella naevia*, Blackcap *Sylvia atricapilla*, Siskin *Carduelis spinus*, Corn Bunting *Emberiza calandra* and Tree Sparrow *Passer montanus*) are on the increase, though some of these only after serious declines. The Raven, in particular, was found by the *Atlas* survey to be far more widespread than suspected and this has been coupled with a steady increase in the number of pairs nesting on buildings and trees. The Blackcap was known to be increasing and spreading west for some years past, but the *Atlas*

work revealed the true extent of this with breeding now regular throughout the greater part of the eastern half of the country, and several outliers in the west. Not all of the latter are regular as yet, but the promising trend continues. The closely related, and in England often closely associated, Garden Warbler is by contrast much rarer with only a very scattered and local distribution, mainly to the north of a line from Dublin to Galway, with little sign of recent change.

WINTER VISITORS

All three common divers winter round the coasts of Ireland in small numbers, usually being seen singly. A tight flock of 55 Great Northern Divers *Gavia immer* reported off Garretstown, Co. Cork, in February 1974 is exceptional by any standards. Small numbers of Red-necked *Podiceps grisegena*, Slavonian *P. auritus* and Black-necked Grebes *P. nigricollis* were seen in most years, with a total of 22 Slavonian in 1974 well in the lead. The by-now regular Spoonbill *Platalea leucorodia* continued to appear in Ballymacoda, Co. Cork, in each winter covered by this review, while another which wintered at Rogerstown, Co. Dublin, in 1972/73, reappeared there the following winter and stayed throughout 1974 and into 1975.

Wintering waterfowl have, as already mentioned, been receiving increasing attention in Ireland in recent years with the establishment of regular winter counts, including aerial surveys of the more remote or inaccessible areas. In the IWC's circulated report submitted to the 1974 meeting of the International Waterfowl Research Bureau (Hutchinson 1974), these counts were used to identify 24 wetlands of international importance for waterfowl and a further 13 of national importance within the Republic. The criteria used in the selection of these sites have been drawn up by the IWRB and are, for international importance, that a site should hold 1% or more of the north-west European flyway population of ducks or swans, 2% of the geese, or regular flocks of over 20,000 waders; and, for national importance, over 5% of the total mid-winter population of any duck, goose, or swan species in the Republic of Ireland, or a regular count of over 10,000 waders. The report also included estimates for the mean total numbers of several species wintering in the Republic. These are reproduced in table 1, together with the level required for international importance, the number of sites for each species which qualify at the international and national levels, and the largest single count so far made for each species.

Among species not included in the table are two, the Scaup *Aythya marila* and the Common Scoter *Melanitta nigra*, which have declined in recent years. The former's main haunt is Carlingford Lough, Cos. Louth/Down, where up to 2,500 were regular in the mid-1960's. In

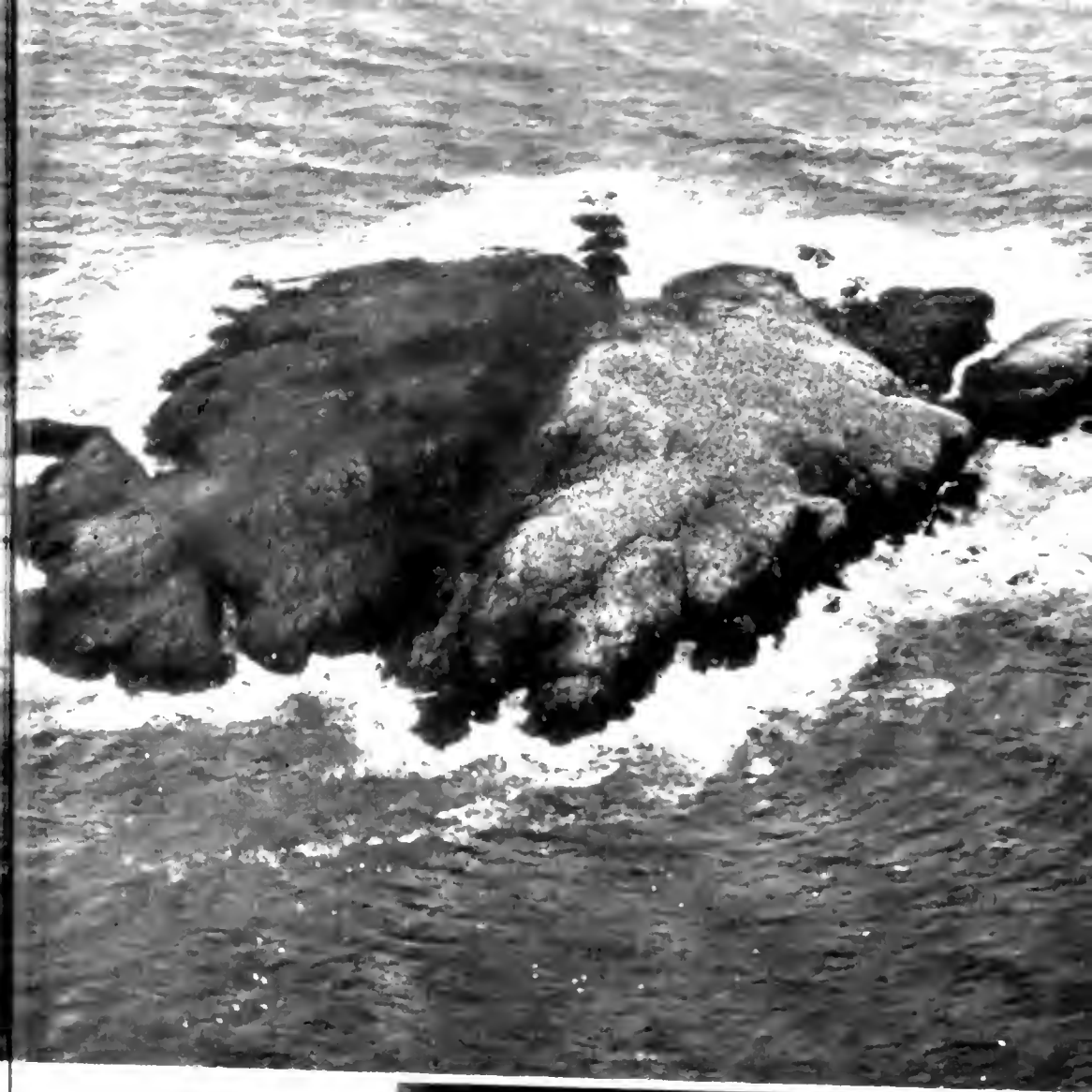
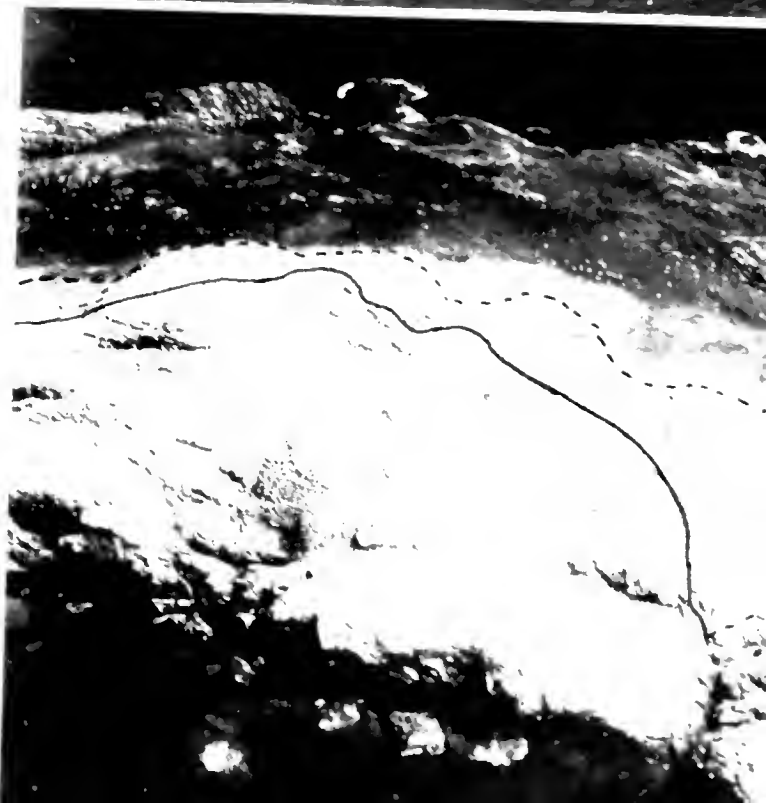


PLATE 9. Aerial views of the
 lony of Gannets *Sula bassana*
 Grassholm, Dyfed, 1975.
 Above, view towards the south-
 east photo by courtesy of the
 Royal Air Force; right, the
 main part of the gannetry
 in the north, early August,
 with a continuous line showing
 the extent of the colony in
 1974 and the broken one the
 extent in 1975 photo: Studio
 Ltd. (pages 88-90)



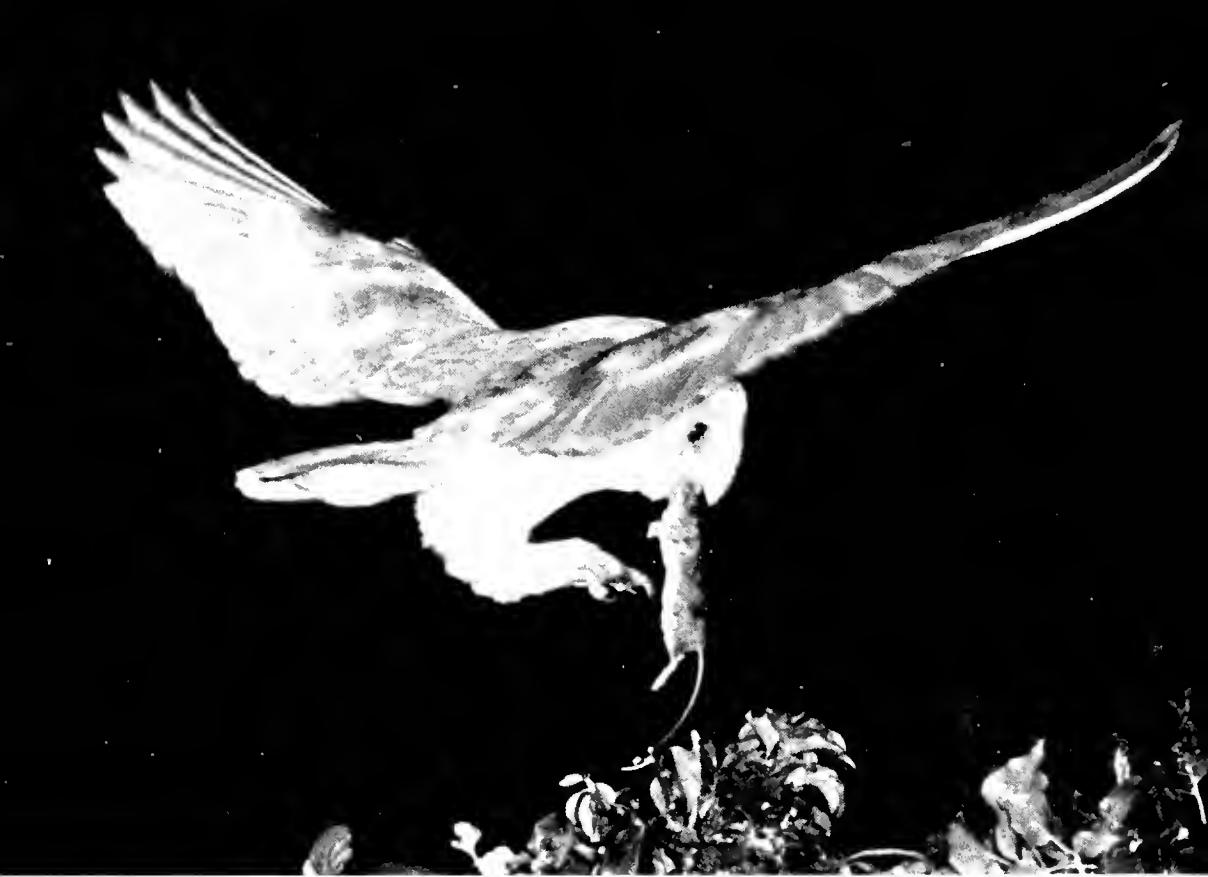


PLATE 10. Above, Barn Owl *Tyto alba*, Co. Cork, 1974; breeding density in Ireland is now much reduced. Left, Hen Harrier *Circus cyaneus*, Co. Cork, 1974; continues to increase in Ireland, breeding in 13 counties (photos: Richard T. Mills) (pages 91-103)



PLATE II. Two of the many American waders which reached Ireland during 1970-74: above, Wilson's Phalarope *Phalaropus tricolor*, Co. Cork, 1974; below Solitary Sandpiper *Tringa solitaria*, Co. Cork, 1971. photo: Richard T. Mills





PLATE 12. Above, Common Terns *Sterna hirundo*, Co. Wexford, 1974; 700 pairs bred on Tern Island in 1970. Below, Glaucous Gull *Larus hyperboreus* in Cork City, 1974; there were 81 sightings of this northern species in Ireland in 1974 alone (photos: Richard T. Mills)



Table 1. Mean totals of wildfowl wintering in the Republic of Ireland, criteria for international importance, number of sites of international and national importance, and largest single count, based largely on counts during 1971-74

Species	Mean winter population	International importance requirement	NUMBER OF SITES OF IMPORTANCE		Largest single count
			International	National	
Ward <i>Anas platyrhynchos</i>	20,000	10,000	0	5	3,800
W. <i>A. crecca</i>	32,500	2,500	2	3	4,600
W. <i>A. strepera</i>	500	100	2	2	150
W. <i>A. penelope</i>	70,000	5,000	4	4	9,900
W. <i>A. acuta</i>	4,250	650	3	4	2,000
W. <i>A. clypeata</i>	5,500	700	2	6	2,000
W. Duck <i>Aythya</i>					
W. <i>regula</i>	12,500	5,250	0	5	2,800
W. <i>A. ferina</i>	35,000	2,250	2	2	22,000
W. Duck <i>Tadorna tadorna</i>	6,000	1,000	2	1	2,415
W. <i>anser</i>	750	1,700	0	5	275
W. <i>Whitefront</i>					
W. <i>albifrons flavirostris</i>	8,500	300	2	0	7,000
W. <i>bellied Brent Goose</i>					
W. <i>bernica hrota</i>	11,000	240	7	0	6,000
W. <i>Goose</i>					
W. <i>pus</i>	4,500	800	1	1	2,500
W. <i>poor Swan Cygnus</i>					
W. <i>us</i>	Not given	175	5	0	600
W. <i>ck's Swan</i>					
W. <i>avickii</i>	Not given	100	3	0	700
W. <i>Swan C. olor</i>	Not given	1,200	0	0	Not given
W. <i>ass</i>	Not given	20,000	5	3	Not given

1970/71 the maximum count was 1,022, and this dropped to only 490 in 1972/73 before recovering a little to 758 in 1973/74. In Wexford Harbour, too, numbers remain well below earlier levels. Common Scoters used to be numerous off the east coast but a flock of 300 off Co. Meath in August 1974 was the largest seen there for eleven years. Velvet Scoters *M. fusca* and Long-tailed Ducks *Clangula hyemalis* occurred each winter, though in varying numbers. Single Smew *Mergus albellus* were reported each winter.

The Greenland White-fronted Goose *Anser albifrons flavirostris* continues to give cause for concern. The principal haunt at the Wexford Slobs is not protected but shooting, though still relatively heavy, is limited to a fixed number of organised shoots per winter. Elsewhere, however, the picture is very gloomy with bogs being drained or disturbed and several small flocks disappearing. Furthermore the Wexford Slobs flock has not increased in corresponding fashion, not that this would necessarily be welcomed wholeheartedly as one can already argue that the population is even now over-concentrated at this one haunt. A number of other geese were

regular in small numbers, mostly at the Wexford Slobs, including European Whitefront *A. a. albifrons*, Pink-footed *A. brachyrhynchus*, Snow *A. caerulescens* and various races of Canada *Branta canadensis*.

The Light-bellied Brent Goose *B. bernicla hrota* population fluctuated widely, as is usual in such a high arctic breeder. Recent colour marking has shown that the proven breeding range for this population extends across arctic Canada rather further than had previously been thought with at least one bird reaching Ireland from Bathurst Island at about 100°W. Counts were made in each of the winters under review and the peak varied from over 12,000 in November 1970 to a record high of 16,140 in December 1973. As is to be expected, the variations in the counts correlate well with the breeding success in the previous summer.

Another in the irregular series of censuses of the wintering Barnacle Goose *B. leucopsis* population was carried out in April 1973 and revealed that the total in Ireland (4,400) had remained at much the same level as in the three previous surveys of 1961, 1962 and 1966, though the whole population had increased two-fold in the same period, all of the increase occurring in Scotland (Ogilvie and Boyd 1975).

Just as regular counts have greatly increased knowledge of Ireland's waterfowl, so the decision of the IWC to join in the Birds of Estuaries Enquiry has led to enormous advances in knowledge of the numbers and distribution of waders and the relative importance of different estuaries. On the basis of the criterion already given under the waterfowl, five estuaries, Shannon/Fergus, Dundalk, North Bull, Ballymacoda and Cork Harbour, have been shown to be of international importance, while a further three, Wexford Harbour, Little Brosna, and the River Suck, Co. Roscommon, are of national importance. To these can be added the Northern Ireland sites of Strangford Lough and Lough Foyle, both of international importance. Strangford and the Shannon, at their peak, rank about 10th equal in the whole of Britain and Ireland.

The detailed distribution of the waders has not yet been given the same treatment as the waterfowl, but some information on the Knot *Calidris canutus* and the Dunlin has been published in the IWC Newsletter while other peak counts appear in the *Reports*. Strangford Lough is far and away the most important site for Knot with a peak count of 22,000, while North Bull has had 11,000 and Dundalk 10,000. The Irish total of 50-55,000 amounts to around 12% of the European-North African winter population. The Shannon has easily the largest population of Dunlin (peak count 33,000) with only Dundalk Bay (at 12,000) otherwise getting into five figures, though six other estuaries have over 2,000. Approximately 100,000 Dunlin winter in the whole of Ireland compared

with about three times that number in Britain. Peak counts which have been published for other species include 26,700 Oystercatchers at Dundalk in mid-winter; 16,400 Black-tailed Godwits *Limosa limosa* on the Shannon estuary, and 6,000 in Dundalk; nearly 4,000 Bar-tailed Godwits *L. lapponica* at Dundalk; and about 27,000 Lapwings *Vanellus vanellus* in Co. Wexford. Small numbers of Common Sandpipers, Spotted Redshanks *Tringa erythropus*, Ruffs *Philomachus pugnax* and Avocets *Recurvirostra avosetta* winter most years.

Glaucous Gulls *Larus hyperboreus* and Iceland Gulls *L. glaucoides* are regular winter visitors to Ireland with the former species amassing 81 sightings in 1974. Two Shore Larks *Eremophila alpestris* seen in Co. Louth in February 1970 were the only ones recorded in the period. Waxwings *Bombycilla garrulus* occurred in every winter, particularly in 1970/71 when there were a number of records of over 50, and a highest count of 110 near Belfast. Great Grey Shrikes *Lanius excubitor* were recorded in most winters, but there were only two records of Lapland Buntings *Calcarius lapponicus*.

PASSAGE MIGRANTS

As previous authors of these summaries have found, the distinction between a passage migrant and a vagrant is not always straightforward, particularly as a species may change from one to the other over a period of years.

Regular sea-watching, especially at Cape Clear Island but also at several other prominences, was rewarded with sightings of several species of shearwaters. The most numerous were Great Shearwaters *Puffinus gravis*, of which several hundred were seen off Cape Clear in autumns 1970 and 1971, only a handful in 1972, then a massive 14,374 in a six-week period in August-September 1973, including nearly 4,500 on one day; in contrast relatively few were reported in 1974. Sooty Shearwaters *P. griseus*, too, had one outstanding passage, in August 1970 when over 5,000 were seen off Clear, then many fewer in the next two years but large numbers again in 1973. Small numbers of Balearic *P. p. mauretanicus*, Little *P. assimilis* and Cory's *Calonectris diomedea* were seen in most years.

One or two Little Egrets *Egretta garzetta* are normal each year but the 18 or 19 reported in the spring of 1970 almost doubled all previous records. This influx paralleled a similar one in Britain. Garganey *Anas querquedula* were recorded each spring, mostly two or three but seven in 1971. A wide variety of waders occurred regularly on passage through Ireland but some which are relatively common in Britain are much less often reported, including the Little Stint *Calidris minuta* and the Curlew Sandpiper *C. ferruginea*.

Skua passage continued to receive attention at a number of sea-watching sites but full details were published only in 1970 and 1971.

Arctic Skuas *Stercorarius parasiticus* remained the commonest, though Great *S. skua* ran them close at some stations. The total of 113 Pomarines *S. pomarinus* reported from Cape Clear in 1971 was more than the total for the previous five years combined. Sabine's Gulls *Larus sabini* and Mediterranean Gulls *L. melanocephalus* continued to be reported regularly.

Little Gulls *L. minutus* have previously been dealt with as passage birds but must now be regarded as winterers as well. Numbers increased spectacularly in the period under review from 49 in 1969 (corrected from the previously published 44) to 81 in 1971, at least 150 in 1972, not less than 370 in 1973, and probably as many in 1974. The presence of quite large flocks, particularly along the coasts of Cos. Dublin and Wicklow, has made the calculation of a total of individuals involved now almost impossible. The peak count was on 12th January 1974, when two flocks of 164 and 90 were seen. As is so often the way, the birds have timed their dramatic change in status immediately to follow the publication of a useful paper by C. D. Hutchinson in the 1971 *Report*. He covers status changes from 1950 to 1970 and so provides excellent background material to the current upsurge.

Ireland, like Britain, received regular visits from overshooting birds that breed in southern Europe, and during the five years small numbers of Hoopoes *Upupa epops* and Golden Orioles *Oriolus oriolus* have appeared, though with no signs so far of staying to breed. Wrynecks *Jynx torquilla* were reported in three of the five years while a small influx of Great Spotted Woodpeckers *Dendrocopos major* took place in autumn 1972, with up to 16 records in the following winter.

As a possible precursor of future breeding, it was interesting to note the appearance of a flock of Bearded Tits *Panurus biarmicus* at Cape Clear in October 1972, and of a flock of four in Co. Wicklow in October 1974. As these are respectively the second and third Irish records they should properly be called vagrants but to a British observer this classification would seem strange.

Cape Clear Bird Observatory was regularly manned throughout the period under review but sadly that on Great Saltee was visited only occasionally. This will undoubtedly introduce a bias into the records of those migrants and rarer visitors whose presence is so much more easily detected on a small offshore island than elsewhere. In particular the species which formerly turned up regularly on Saltee and hardly at all on Clear are now missing from the *Reports* and are certainly being under-recorded.

European warblers turn up in Ireland, particularly at observatories, as they do in Britain, and Melodious *Hippolais polyglotta*, Icterine *H. icterinus*, Barred *Sylvia nisoria* and Yellow-browed Warblers *Phylloscopus inornatus* all put in an appearance in at least

three of the five years under consideration. However, it is perhaps more thought-provoking for a British ornithologist to note that Lesser Whitethroat *Sylvia curruca* and Tree Pipit *Anthus trivialis* fell into the same category of reporting frequency. Granted that these species may be leaving Britain on a southerly or even south-southeasterly heading, and that the closure of Saltee Bird Observatory has removed one of the more likely places for them to be seen, but if the other species can wander or be drifted from the Continent as far as Ireland it is perhaps strange that these others, breeding as they do so much nearer, are not more regular in occurrence.

There was one influx of Crossbills *Loxia curvirostra*, in autumn 1972. The largest flock seen was about 70. Many stayed through the winter and display and song was reported in spring 1973 but apparently none bred.

VAGRANTS

Throughout the period under review, the annual 'Report on rare birds in Great Britain' in *British Birds* has contained full details of Irish vagrants, also published in the *Irish Bird Reports* and kindly made available by the Irish Records Panel. This summary is therefore the first which will not list all Irish vagrants, but attention is, however, drawn to the wealth of rarity descriptions that are published in each *Irish Bird Report*. From 1970 to 1973 these were incorporated in the body of the Systematic List, but in 1974 they were grouped together at the end. Full field notes and descriptions are printed for all species which have occurred in Ireland five times or less. It was previously the custom to print brief extracts from field descriptions for most other rarities, but this practice ceased in 1972, no doubt for sound economic reasons. It seems worth listing the full field descriptions for the information of readers as they contain so much that is potentially valuable in the way of critical identification points. Some of the shorter descriptions published in the 1970 and 1971 *Reports* are also added as they serve the secondary function of demonstrating the wealth of vagrants, particularly of American origin, that the Irish are fortunate enough to receive.

White-billed Diver *Gavia adamsii* 1974

White Stork *Ciconia ciconia* 1974

Ring-necked Duck *Aythya collaris* 1974
(two different sightings)

Red-footed Falcon *Falco vespertinus* 1973

Killdeer *Charadrius vociferus* 1971

Lesser Golden Plover *Pluvialis dominica*
1970, 1971

Dowitcher *Limnodromus* sp 1970, 1971

Solitary Sandpiper *Tringa solitaria* 1971.
1974

Greater Yellowlegs *T. melanoleuca* 1971

Lesser Yellowlegs *T. flavipes* 1970, 1971

Least Sandpiper *Calidris minutilla* 1970

Baird's Sandpiper *C. bairdii* 1970

Sharp-tailed Sandpiper *C. acuminata*
1973

Semipalmated Sandpiper *C. pusilla*
1970, 1971

Buff-breasted Sandpiper *Tryngites subruficollis* 1970, 1971

Wilson's Phalarope *Phalaropus tricolor*
1970, 1971

- | | |
|---|---|
| Collared Pratincole <i>Glareola pratincola</i> 1970 | Dartford Warbler <i>Sylvia undata</i> 1972
(two different sightings) |
| Bearded Tit <i>Panurus biarmicus</i> 1972, 1974 | Bobolink <i>Dolichonyx oryzivorus</i> 1971 |
| Rock Thrush <i>Monticola saxatilis</i> 1974 | Serin <i>Serinus serinus</i> 1974 |
| Black-eared Wheatear <i>Oenanthe hispanica</i> 1973 | Scarlet Rosefinch <i>Carpodacus erythrinus</i> 1971 |

LIST OF PAPERS PUBLISHED
IN IRISH BIRD REPORTS 1970-74

EVANS, P. G. H., and LOVEGROVE, R. R. 1973. 'The birds of the south west Irish islands'. A brief description of the islands is followed by details of all known ornithological visits, starting in 1850. The systematic list is very full and includes tables of the counts of the principal seabirds breeding on the islands. The bibliography is commendably comprehensive.

HUTCHINSON, C. D. 1971. 'The changing status of the Little Gull *Larus minutus* in Ireland'. As already remarked, this paper has been overtaken by events, but it analyses counts from 1966 to 1970 with some earlier material back to about 1950.

HUTCHINSON, C. D., and KEYS, J. M. 1972. 'The numbers of wild-fowl on the North Bull Island, Co. Down'. A valuable paper with a description of the site and an analysis of the wildfowl counts that go back to 1951. A causeway has recently been built out to the island and the effects of this are being watched closely.

HUTCHINSON, C. D., and ROCHFORD, J. M. 1973. 'The number of waders on the North Bull Island, Co. Dublin'. A complementary paper to the one in the 1972 *Report* on the wildfowl of this important haunt.

MERNE, O. J. 1974. 'The spring departure of Greenland White-fronted Geese from Ireland'. Observations on the ground and from the air revealed the timing and routes taken by flocks leaving the Wexford Slobs. The various factors affecting the geese are discussed.

MOORE, C. C. 1974. 'An analysis of large scale autumn seabird passage in the north-west Irish sea'. An analysis of observations made principally at Clogher Head, Co. Louth, in autumn 1974. Divers, shearwaters and skuas were particularly prominent; gulls and terns also passed.

O'MEARA, M. 1974. 'Status of the Kittiwake and other seabirds in east Waterford'. There has been a considerable increase in numbers since 1964 and two new breeding sites established. Mortality, predation and behavioural adaptations are covered, while other seabird species nesting in the area are mentioned.

PRATER, A. J. 1970. 'Counts of waders made in Ireland in January 1971'. An account of an exploratory visit to east and south coast

estuaries producing some of the first estimates for total wader populations for the Republic.

RUTTLEDGE, R. F. 1973. 'Decrease in Greenland White-fronted Geese wintering in Ireland'. This topic has already been covered earlier in this summary. The continued welfare of this goose remains one of the more intractable problems faced by Irish conservationists.

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Obituary

Charles Vaurie, DDS (1906-1975)

Dr Charles Vaurie, Curator Emeritus at the Department of Ornithology at the American Museum of Natural History, died at his home in Reading, Pennsylvania, USA, on 13th May 1975 after a short illness. He was 68 years of age.

Born in Beaulieu, Corrèze, France, it was as a young boy that Dr Vaurie went to the United States, receiving his higher education at New York University and at the University of Pennsylvania. At the latter institution he was awarded the degree of Doctor of Dental Surgery in 1928. He continued post-graduate work at the Eastman Clinic, Rochester, before beginning his dental practice in New York City. It was while he was in practice there that an acquaintance, the late Dr James P. Chapin, awakened in him his initial interest in ornithology.

In 1942 Dr Vaurie offered his services free to the Museum. Four years later he was appointed a Research Associate, and in 1956 accepted the post of Assistant Curator, at the same time relinquishing his dental practice entirely. He became a full Curator in 1967 and, when he retired in 1972, Curator Emeritus.

Dr Vaurie will be best remembered for his monumental two-volume work on the classification and distribution of birds of the Palearctic region from Britain and Ireland through Europe to Japan: *Birds of the Palearctic Fauna*, published in 1965 (*Non-Passeriformes*) and 1969 (*Passeriformes*), has become a standard reference book for all ornithologists. Perhaps it was because of his great interest in geography and cartography that his principle work should deal with the distribution of birds, a field in which he was recognised as an expert. Though less well known, his book on the avifauna of Tibet also carries much weight. For this project he had to search museums and archives throughout Europe in order to catalogue every specimen of bird ever collected in Tibet, and his access to the great collections in Russia of Tibetan birds obviously assisted him in his task; he listed more than 500 species, over twice the number which had been previously expected, and the result was the publication of *Tibet and its Birds* in 1972.

While engaged on the Tibetan project, Dr Vaurie also published a major study of a family of gamebirds from tropical America, work which he undertook, he claimed, because it offered him the opportunity to take a vacation from one study by working on the other. He once commented 'I like the idea of having one foot in one part of the world and one foot in the other'. His interests were not, however, confined to the study of birds alone: he accompanied his wife,

Patricia, a former Research Assistant in the Department of Entomology at the Museum, on collecting expeditions to Mexico, Central America and the West Indies, and during one of these travels in 1952 they together collected 20,000 specimens of unusual and valuable insects on the island of Tiburon and in the State of Sonora in Mexico.

Besides being the only American who was a corresponding member of the Museum of Natural History in Paris, Dr Vaurie was elected a Fellow of the American Ornithologists' Union. DAC

Notes

Feeding behaviour of Buffleheads From late December 1973 to early February 1974, in Florida, USA, I found small parties of Buffleheads *Bucephala albeola* in markedly different habitats. In the Gulf of Mexico, in deep water, they actively and communally dived for their food below the surface, when they often submerged together and reappeared within seconds of each other; individuals, however, occasionally dived on their own. In marked contrast and well inland at Zellwood, where a vast farm complex of flat arable land was intersected by dykes, a few Buffleheads were found wading in muddy water, 'grubbing' in the way that Shelducks *Tadorna tadorna* feed in Europe. With heads quickly moving from side to side and shoulders partly submerged, they were apparently obtaining vegetable matter in the water as well as insects on the surface. At Cape Canaveral, on the Indian River, a straggling line of Buffleheads was feeding almost entirely by upending, the birds keeping their balance by rapidly paddling with their feet.

A. C. Bent (1923, *Life Histories of North American Wild Fowl*, 2: 28) said that Buffleheads are usually to be found in small parties feeding by diving, but rarely all at once. A. J. Erskine (1972, *Buffleheads*, Canadian Wildlife Service, series 4: 21-22) mentioned that they prefer to dive, even in shallow water. He has informed me (*in litt.*) that he has seen them with heads submerged and bodies in the normal floating position for brief periods but has never observed them upending.

BERNARD KING

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Jays taking food from peanut feeder The interest in House Sparrows *Passer domesticus* and other species learning to take peanuts from a feeder in the same way as tits *Parus spp* (see, for example, *Brit. Birds*, 67: 356) prompts me to write on the same subject. In

the garden of my home at Grange Park in north London I have a helical spring peanut feeder suspended from a rather flimsy branch of a lilac bush. In the spring and summer of 1972 and 1973 the garden was visited regularly by two Jays *Garrulus glandarius* which eventually learnt to take nuts from the spring. Of particular interest was that the two birds developed quite different techniques: one hung on to the feeder and obtained nuts in exactly the same way as do tits and Greenfinches *Carduelis chloris* but the other landed on the ground and then flew up to the feeder, making a stab at it with its bill. It then either flew into a tree or back to the ground and, after a few moments, repeated the performance. Occasionally this technique failed to produce a nut but more often than not was successful. Considering the size of the Jay's bill in relation to the small space between the coils of the spring, the success rate seemed to indicate very good co-ordination of the bird's movements in obtaining a nut without the use of the feet. P. R. GREENWOOD

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Reviews

Ducks of Britain and Europe. By M. A. Ogilvie. T. & A. D. Poyser, Berkhamsted, 1975. 206 pages; 15 pages of colour illustrations; numerous line drawings and maps. £5.00.

For many ornithologists, and all wildfowlers, ducks have a special fascination. This very interesting book gives a high proportion of the known facts about the forty-two species or subspecies of ducks which have been recorded in Europe.

Separate chapters deal with general behaviour, identification, breeding, distribution and status, migration and conservation. The author has been a member of the research staff of the Wildfowl Trust for fifteen years and this experience enables him to write about ducks with authority. He also writes well, steering a path between the popular and the erudite, and every reader—except, possibly, another duck specialist—will find much to interest and inform.

The section on identification is the longest, taking up about one-third of the text, and is accompanied by colour plates by the author's wife, showing the male and female of each species in flight. The breeding and eclipse plumage of both sexes is described in detail and there are notes on the appearance of downy young and immature birds. The book does not set out to be a field guide, but more information is given than is compressed into the standard guides

and the author suggests it may be of assistance for checking or confirmation. Indeed it may, but it would have to be after the event as the book is too large to carry in the pocket.

The section on distribution and status includes maps showing the winter and summer distribution of each species in Europe and the text gives population figures taken from the international wildfowl counts and other sources. It is a pity that more information is not given about distribution within Britain.

A short chapter on conservation and exploitation discusses the threats to the breeding and wintering areas of ducks. It is stated that there was formerly a considerable amount of ill-feeling between shooters and conservationists in Britain: it is true that this misunderstanding is largely a matter of the past but it is hardly helpful for the author to stress the possible disturbance by birdwatchers and fail to mention the surely much greater disturbance of indiscriminate wildfowling.

The division of the book into chapters means that a great deal of page-turning is necessary if the reader requires all the information about one species; the identification and distribution sections, in particular, would be more useful if amalgamated. The saving in space might have been used for giving more information derived from ringing returns and on the arrival and departure dates of summer residents and winter visitors.

E. R. PARRINDER

Birds of Town and Suburb. By Eric Simms. Collins, London, 1975. 256 pages; 50 black-and-white photographs; 144 figures. £3.50.

Throughout an energetic and successful career, from schoolmaster to director of wildlife sound recording at the BBC and, more recently, as freelance TV producer and broadcaster, Eric Simms has studied the birds around him, at home and on his frequent travels. His detailed, long-term research into the birds of Dollis Hill (the London suburb where he has lived for 25 years), covering breeding and winter censuses, migration, roosting and other behaviour, forms the inspiration and the basis for this book. But only the basis, for the scope is much wider than the title might suggest. After discussing the rise of suburbia, his chapters deal with the nearer suburbs; the outer ring (including estates, factories and open spaces); the edge of the countryside; rivers, lakes and reservoirs; marshes, sewage farms and gravel pits; and then, following these habitat chapters (which go well beyond the suburbs to other areas where man-made developments have influenced birds), there are discussions of birds and the pursuit of sport (covering game-keeping as well as playing fields, golf courses and water sports), suburban roost and flylines, and, a lifelong interest of his, birds on the move.

He draws vividly on his own experience, from Rugby and central London, Tring, Hilbre, north Kent, the Cotswolds, the Somerset coast and elsewhere throughout. These personal observations bring life and richness to the book, but in addition he covers the literature in detail (local reports as well as the national journals) and gives much unpublished data from other observers. The critics of amateur ornithologists have often complained that the majority of bird-watchers live in towns and suburbs yet rarely study seriously the birds of their home areas. After reading this massive compilation, their case can hardly be sustained. Indeed the only possible complaint left to them is that the sheer mass of facts is almost overwhelming, making it hard to trace the general principles which underline the avian ecology of the built-up areas. This can hardly be blamed on the author, for we are still largely at the fact-gathering stage (and there are serious gaps in relevant data from other disciplines—and all too often an ignorance by ornithologists of what information is available), while so complex is the subject that it probably needs professionals of diverse interests to begin work on a synthesis. Perhaps a wider approach is also desirable, for elsewhere, especially in central Europe, much relevant research is now being done on this subject, often beginning to tackle the more fundamental problems. Meanwhile, here are the basic facts for many areas in Britain set forth lucidly and well, and reflecting always the skill and enthusiasm which Eric Simms has brought to his birdwatching.

STANLEY CRAMP

A Guide to Bird-watching in Europe. Edited by James Ferguson-Lees, Quentin Hockcliffe and Ko Zweeres. Bodley Head, London, 1975. 335 pages; 22 maps; 24 drawings. £3.95.

Most of this maxipocket-sized volume consists of 25 essays on bird-life in every European country, or occasionally group of countries, west of the USSR border. The units and grouping are ornithological rather than political; thus the Channel Islands are treated separately but appended to France, Corsica goes in with Italy, Albania and Turkey-in-Europe with Greece, and the two Germanies are integrated in keeping with the major ornithological association which serves both countries. Resulting coverage is complete if somewhat variable, although seldom to the extent of unduly skimpy treatment.

Some of the unevenness stems from the multiplicity of authors, although the editors have been commendably successful in securing consistency of approach. This usually includes some account of the organisational and conservation situation, topography, climate and ecological subdivisions, as well as the avifaunal review, in which inevitably place-names and (English) bird-names predominate. Nineteen authors are responsible for the 25 essays, the discrepancy

accounted for by all four Fennoscandian reviews being undertaken by Dr Curry-Lindahl, the Germanies and Austria by Dr Bruns, the Benelux trio by the last-named and Bulgaria as well as the United Kingdom by the first-named editor. It is perhaps a pity that, doubtless for good practical reasons, nearly half the contributors are non-natives or non-residents of the country concerned (witness the markedly superior scope and content of the essay on Sweden compared with those on its three nearest neighbours).

Each chapter-heading includes a drawing of a bird apparently chosen as a typical 'bonne bouche' of the country. The selection is occasionally a trifle odd (e.g. the Great Bustard for Poland), but the drawings, by H. J. Slijper, admirably convey the character of both bird and habitat. Edgar Holloway's sketch-maps are also excellent for orientation purposes, though in one or two instances a little more detail could have been accommodated with advantage.

The last 35 pages contain tables of status for 432 species in a slightly re-arranged panel of 31 countries or areas, each species being allocated to one of six 'common' and six 'scarce to doubtful' categories. This provides a quick and useful way of ascertaining whether a particular bird occurs, even if it may not be mentioned or is difficult to find in the relevant essay. In general, a handy 'aide mémoire' rather than practical guidebook would probably best describe this book, drawing attention, in countries one knows, to what one has missed or the authors have missed (often no doubt because of the need for compression); and, in other countries, providing an obviously reliable introduction and stimulus to look into the ways, means and costs of making a visit. HUGH ELLIOTT

Letter

Lanceolated Warblers and vagrancy patterns Commenting on the records of Lanceolated Warblers *Locustella lanceolata* at Fair Isle (Shetland) on 22nd September 1973 and Out Skerries (also Shetland) on the same date, following one on Fair Isle on 19th-21st September 1972, the 'Report on rare birds in Great Britain in 1973' states 'Three in two years is quite exceptional for this species which is an erratic vagrant at best, with 15 records all told' (*Brit. Birds*, 67: 332). This statement is actually the opposite of the truth.

Records of Lanceolated Warblers in Britain were distributed as follows: three in 1908-10, three in 1925-28; singles in 1938, 1953 and 1957, three in 1960-61 and three in 1972-73. Small spates of records appear to be the norm rather than the exception; with

such a skulking and difficult species, one wonders what the true size of these periodic arrivals here may be.

Many other vagrant species show comparable non-random patterns, with records falling in groups. To quote just a few examples: Marsh Sandpipers *Tringa stagnatilis* were recorded on seven occasions in the seven years 1963-69 and six of the previous twelve records were in the six years 1951-56, with none between 1956 and 1963; American Robin *Turdus migratorius* records were in 1891-94, 1952-55 and 1961-67; Olive-backed Pipits *Anthus hodgsoni* have occurred in autumn in 1964-65 and 1973-74 (with one in spring 1970).

Vagrancy is most likely to occur when populations are at a high level and the patterns of records in Britain and Ireland are likely to be reflecting such periodic events.

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News and comment *Peter Conder*

United Kingdom ratifies International Wetland Convention The Convention on Wetlands of International Importance Especially as Waterfowl Habitat—the Ramsar Convention—has already been treated in an earlier editorial (*Brit. Birds*, 69: 1-3). Two days before it came into force the British Government formally ratified its signature and on 5th January 1976 the Instrument of Ratification was formally deposited by our ambassador at UNESCO headquarters in Paris. The United Kingdom thus becomes the ninth member of a group of countries pledged to conserve their wetlands, one of the most threatened ecosystems at the present time. The Convention is unique in that the contracting parties undertake to modify their land-use because of environmental considerations. Besides accepting a series of general provisions, both positive and restrictive, each country nominates a List, for especial conservation, of Wetlands of International Importance existing within its borders. The nine countries have so far nominated 79 wetlands in this category, covering over 2 million ha. The British List at present comprises 13: *England*—Bridgwater Bay, Bure Marshes, Hickling Broad and Horsey Mere, Lindisfarne, Minsmere and Walberswick, North Norfolk Coast, Ouse Washes; *Wales*—Cors Fochno and Dyfi; *Scotland*—Loch Druidibeg, Loch a'Machair, Loch Stilligarry, Loch Leven, Loch Lomond, Rannoch Moor; and *Northern Ireland*—Lough Neagh and Lough Beg. The International Waterfowl Research Bureau, whose director is Professor G. V. T. Matthews, Deputy Director of the Wildfowl Trust, has been the main driving force in getting this important international convention agreed and accepted, through a series of conferences in France, Scotland, Netherlands, USSR, Finland, Iran and West Germany over the past 14 years. The IWRB will continue to stimulate and coordinate the research needed to provide a proper scientific basis for such a convention throughout the world. The continuing bureau duties pass to the International Union for the Conservation of Nature and Natural Resources (IUCN), which has its headquarters in Morges, Switzerland.

XVII International Ornithological Congress On the occasion of the XVI International Congress in Canberra the International Ornithological Committee accepted the invitation of the Deutsche Ornithologen-Gesellschaft to hold the XVII Congress in Germany. It elected Professor Donald S. Farner (Seattle) as President of the Congress. In consultation with the President the German members of the International Ornithological Committee decided to hold the congress in the Kongresshalle in West Berlin from June 4th to 11th 1978; Rolf Nöhring of the Berlin Zoological Garden was designated as Secretary General.

For the first time, the Scientific Program Committee is an international one. Its members are Immelmann (Bielefeld) (Chairman), Berthold (Mögglingen), Bock (New York), Dorst (Paris), Gwinner (Erling-Andechs), Ilyichev (Moscow), Snow (Tring) and Wiltshko (Frankfurt/Main). Five plenary sessions are planned. There will be about 30 symposia arranged in four parallel sessions. Contributed papers will be presented as 'poster papers' for which the Kongresshalle has excellent facilities. Instructions for preparations of materials for poster papers will be available later. Time and space for round-table discussions will be assigned to appropriate individuals or groups, on application to the Secretary General. The themes and structures of these discussions are prerogatives of the organisers or organising groups in consultation with the Chairman of the Scientific Program Committee. These themes as well as those of the poster papers will be announced in the program of the congress. An extensive film program is being arranged by a committee chaired by Georg Rüppell (Erlangen). All-day and evening sessions are projected together with 'replays' of those that prove to be most popular. Excursions, no longer restricted to the inviting country but leading to several European countries, will precede and follow the congress. Details will be included in the second announcement, which will be available for mailing in August 1976 and will contain forms for preliminary registration for the congress and excursions. Those interested in participating in the congress are urged to inform the Secretariat as early as possible in order to obtain the second announcement and communications concerning the congress. Enquiries should be addressed to the Secretary General Rolf Nöhring, Zoologischer Garten, Hardenbergplatz 8, 1 Berlin 30, Germany.

Further investigations into importation Following reports that regulations established by the International Air Transport Association governing the conditions under which birds and other animals are transported by air were being widely ignored both by importers and exporters, the RSPB has set up a new enquiry into the conditions of birds arriving at London's Heathrow airport. Tim Inskipp, the research biologist who painstakingly compiled *All Heaven in a Rage*, is undertaking the six-month enquiry with the co-operation of the RSPCA's staff at Heathrow. The possibility of such an investigation was envisaged in Mr Inskipp's first report if it later became apparent that the IATA regulations were not being observed. The deaths at the end of last year of more than 2,000 birds—mainly finches and parakeets en route from Calcutta to London—as a result of overcrowding, thirst and starvation show how necessary such action and further protests are. The 2,000 birds were packed into 19 boxes and were left unattended during a 48-hour delay at Kuwait.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

Autumn summary *D. A. Christie*

The remarkable incidence of vagrants has been dealt with in previous summaries; this one covers some of the more common birds which complemented the best autumn ever in Britain and Ireland.

DIVERS TO RAPTORS

The largest gathering of **Red-throated Divers** *Gavia stellata* reported was 0.20 at Formby Point (Merseyside) on 19th October. Passage of **Manx Shearwaters** *Puffinus puffinus* was relatively small: the well-watched Seaton Sluice (Northumberland) recorded highest numbers with 202 north and 20 south on eight dates in August, maximum figures being 81 on 30th, when over 60 were noted at both Spurn (Humberside) and Hartlepool (Cleveland); seven flew north at Seaton Sluice on 7th October; only two inland records involved birds in Salop and in Lancashire, both in September; in Scotland over 1,100 flew past Troon Harbour (Strathclyde) in three hours on 24th July. Movements of **Gannets** *Sula bassana* included 1,200 north at Seaton Sluice on 14th September, and at the Calf of Man 1,500, mostly flying south, in five hours on 20th and 1,000, again mostly south, on 25th; one was found exhausted inland at Crosspool (South Yorkshire) on 2nd October and released three days later on the south coast. **Shags** *Phalacrocorax aristotelis* turned up at several inland localities, at Tunstall Reservoir (Durham) on 16th and 17th October and at Hambleton Weir (Buckinghamshire) on 17th, and in the last seven days of November at Sevenoaks (Kent) and at Oxshott brickworks (Surrey).

There was a good passage of **Garganey** *Anas querquedula*, with maximum numbers at Cliffe (Kent) on 13th August (20) and at Belvide Reservoir (Staffordshire) on 15th (16). Good numbers of **Kestrels** *Falco tinnunculus* passed south at Spurn in October, maximum numbers being 37 on 3rd and 36 on 6th. A late **Hobby** *F. subbuteo* was noted at Dungeness (Kent) on 30th October.

WADERS

Only five **Kentish Plovers** *Charadrius alexandrinus* were brought to our notice, in East Sussex (two), Kent and Suffolk (two), though others may not have been reported. A total of 14 **Dotterels** *Eudromias morinellus* was seen between 17th August (Hampshire) and 12th October (Merseyside), including four at Hauxley (Northumberland) on 14th September. The first **Jack Snipe** *Lymnocyptes minimus* arrived at Chetney (Kent) on 30th August, a few more were noted in September and the highest October count was of 26 at Lower Stoke (Kent) on 18th. Abnormal numbers of **Woodcock** *Scolopax rusticola* appeared on Fair Isle (Shetland), arrivals of 50 or more taking place on 21st and 22nd October and over 100 being present on 10th November. Passage of **Black-tailed Godwits** *Limosa limosa* was about average, with Steart (Somerset) again holding the most, 1,200 on 17th August. Three or so **Wood Sandpipers** *Tringa glareola* were reported from mid-June, another 23 followed in July, and in the peak month of August 50 were found in singles and parties of up to eight; 16 were reported in September and three October birds included the latest at Tinsley sewage farm (South Yorkshire) on 7th. Passage of **Common Sandpipers** *T. hypoleucos* was above average, particularly in Kent where 120 were counted on the River Stour at Sandwich on 13th August (still 90 there on 19th) and a maximum of 75 was at Sandwich Bay on 16th (still 15 on the late date of 2nd November); an interesting report concerned four individuals which landed on a road at Whitely Bay (Northumberland) during heavy rain on 30th August, some even perching on garden walls.

An excellent passage of **Little Stints** *Calidris minuta* took place from 16th June when one was at Bittell (Worcestershire); the majority of birds passed through at the end of August and beginning of September, the largest parties

being found at Cresswell (Northumberland) on 31st August (27) and at Cliffe on 1st September (25); good numbers were present until the second week of September, including nine inland at Blithfield Reservoir (Staffordshire) on 7th; 33 or more were found in October, and several November records included a single at Blithfield on 1st. **Curlew Sandpipers** *C. ferruginea* were even more obvious: again there were few birds from mid-June until August (though eleven were at Minsmere (Suffolk) on 27th and 28th July) and then a huge influx occurred, starting with 16 at Cliffe on 11th; the main peak was in the last few days of that month and the first half of September, more protracted than the Little Stint passage, and large parties included 45 at Cliffe on 30th with 65 there on 7th September, 74 at Teesmouth (Cleveland) on 26th increasing to 84 on 31st, and 60 at Holne (Norfolk) on 8th September; exceptional numbers were found inland, for example 24 at Belvide and 21 at Blithfield on 31st August, 36 at Eye Brook Reservoir (Leicestershire) on 8th September, 25 at Blithfield on 10th, 29 at Chew Valley Lake (Avon) on 12th, and a further ten at Blithfield on 20th; there was evidence of continuing passage in October with at least 40 birds including seven at Blithfield on 12th, and in November six were still at Cliffe on 1st. **Temminck's Stints** *C. temminckii* were recorded at 14 sites, all singles and most on the east coast, but including four inland. Ten **Red-necked Phalaropes** *Phalaropus lobatus* were found at eight localities away from Scotland, a small total which included four inland birds of which one was at Pitsford Reservoir (Northamptonshire) on the exceptionally late date of 11th October. The peak count of **Knot** *C. canutus* on the Ribble estuary (Lancashire) was 103,000 on 5th September, while the largest gathering of **Ruffs** *Philomachus pugnax* was in the same county, 168 at Martin Mere on 18th October.

SKUAS TO AUKS

Skua passage was as usual heaviest on the east coast, particularly at the end of August when day counts totalled over 300 at several places. **Great Skuas** *Stercorarius skua* were commonest in the north-east of England, especially in the Northumberland/Cleveland area in mid-September when 40 to 50 were noted on 13th; the maximum at Dungeness, however, was nine on 2nd October, with late birds there on 19th and 20th November, and a late individual was at Girdleness (Grampian) on 16th November. Few **Pomarine Skuas** *S. pomarinus* were reported but a good number of twelve passed Spurn on 17th August; a late bird was noted off Snettisham (Norfolk) from 21st to 23rd November. **Arctic Skuas** *S. parasiticus* comprised the largest part of the skua passage and an indication of the numbers involved is provided by sightings off Hartlepool of 341 flying north and 29 south on 30th August, 300 passing Spurn the next day, and 334 off Spurn on 13th September with 300 there the next day. Skuas appeared also inland: four **Arctics** at Staines Reservoir (Surrey) on 17th August and another there on 28th September, when there was also a **Pomarine** at the same place; two **Arctics** at Draycote (Warwickshire) at the end of August, three flying west over Church Wilne Reservoir (Derbyshire) on 27th September, and one at Chew Valley Lake on 7th October.

Fifteen or more **Glaucous Gulls** *Larus hyperboreus* were reported from mid-June to October, particularly on the north-east coast of England, and just five **Iceland Gulls** *L. glaucoides* in the same period. A few **Mediterranean Gulls** *L. melanocephalus* were widely scattered on the south and east coasts of England and Wales with no particular pattern emerging. While numbers of **Little Gulls** *L. minutus* were generally poor, a large build-up took place at Castle Eden Dene (Durham) from the end of July which reached 103 on 30th August; 180 was the maximum at Dungeness, on 13th September. The only movements of **Kittiwakes** *Rissa tridactyla* of any note were of up to 1,800 north off Hauxley on three dates in September, 1,500 north in one hour off Whitburn (Tyne & Wear) on

13th, and 2,000 (nearly all flying south) off the Calf of Man on 20th.

A very good number of **Black Terns** *Chlidonias niger* was noted at Dungeness, where the maximum was 550 on 23rd August; at no other place did flocks exceed 100, and the largest inland flock was of 66 at Chew Valley Lake on 9th September, when there were also 34 at Belvide Reservoir; October reports came from ten places, with the last in Peel Harbour on the Isle of Man on 28th and 29th. A roost of **Little Terns** *Sterna albifrons* at Yantlet (Kent) which reached 200 on 1st August may be of interest. **Little Auks** *Plautus alle* were first noted in October, with five moving north at Seaton Sluice on 11th and one found inland at Dale of Walls (Shetland), and in November some large numbers were observed on the east coast, particularly at Spurn which recorded its first on 2nd and day totals of 180 (7th), 120 (8th), 10 (9th) and 26 (18th).

NEAR-PASSERINES

A large assembly of 360 **Turtle Doves** *Streptopelia turtur* was at Levington (Suffolk) on 10th August, and one on the Calf of Man on 7th October was the latest ever recorded there. A remarkable influx of **Long-eared Owls** *Asio otus* occurred on the east coast from mid-October, many birds staying on through the winter: eight were trapped on Fair Isle between 15th and 22nd and Spurn had a maximum of seven on 20th; the invasion continued through November and spread to the south coast. Late **Swifts** *Apus apus* were found at 14 places in October and three in November, the last being one flying south at South Shields (Tyne & Wear) on 6th. Northern **Great Spotted Woodpeckers** *Dendrocopos major* occurred at three places on the east coast from the end of August, with up to three at Spurn during the second half of October. The autumn was not, perhaps surprisingly, especially good for passage of **Wrynecks** *Jynx torquilla*: almost all records concerned singles and a total of only about 50 was reported to us, though this did include an extremely late bird at Chew Stoke (Avon) in the first week of November.

PASSERINES

The last **Sand Martin** *Riparia riparia* of the autumn was at Sandwich Bay on 1st November. The first arrivals of **Fieldfares** *Turdus pilaris* were mainly in September, though late June and July records may possibly have referred to very early returns; Fair Isle's first was on 6th August and the largest flocks came in from 9th October when 1,000 arrived at Spurn; 1,500 were at Spurn on 17th and 3,000 there on the following day, while in the Tyneside area flocks of up to 1,000 were found all along the coastline during 18th-25th. **Redwings** *T. iliacus* did not really show themselves until late September, and then only in very small numbers, and the only large figures were again at Spurn, 5,000 on 9th October, 2,000 on 17th and 4,000 on 18th. On the last date there were also 1,600 **Blackbirds** *T. merula* on the same peninsula, though the only really noticeable arrival of **Song Thrushes** *T. philomelos* was on Fair Isle where over 400 were counted on 30th September and over 750 on 1st October.

No large 'falls' of chats were reported, the most **Whinchats** *Saxicola rubetra* for example being 60 or more at Sandwich Bay on 17th September; six were at Westbere (also Kent) on 2nd November and one at Thornham (Norfolk) on 23rd. Thirty-five **Redstarts** *Phoenicurus phoenicurus* on Fair Isle on 30th September increased to 60 the next day, and a late bird was at Spurn on 2nd and 3rd November. Up to 18 **Black Redstarts** *P. ochruros* were at Portland (Dorset) in October, and 18 on 28th was the highest daily count on the Calf of Man since 1939; elsewhere numbers were not exceptional, though reports of many hundreds were received from Scilly. A **Nightingale** *Luscinia megarhynchos* appeared on Lundy (Devon) on 5th October.

A very heavy passage of **Reed Warblers** *Acrocephalus scirpaceus* was concentrated in Kent: at Dungeness 163 birds were ringed during August and 101 in September,

and at Sandwich Bay totals were 237 and 85 for the same months, both new records; an extremely late bird was trapped at Graythorp (Cleveland) on 15th November, and there were several records from the Shetland area during the autumn period. On Fair Isle a **Sedge Warbler** *A. schoenobaenus* appeared on the exceedingly late date of 11th November. The peak number of **Blackcaps** *Sylvia atricapilla* on Fair Isle was 70 on the last day of September and ten appeared there on 10th November, while late migrants were at Dungeness on 1st November (four) and 12th. With the Fair Isle Blackcaps in September were ten **Garden Warblers** *S. borin*, while the last of that species were seen at Portland on 2nd November and at Chew Stoke about 6th. **Wood Warblers** *Phylloscopus sibilatrix*, uncommon on passage at the coastal stations, appeared in August on Fair Isle on 17th, 18th (three), 21st and 22nd, 23rd (two) and 30th and 31st; at Spurn on 18th; on the Calf of Man on 13th; and at Dungeness on 24th.

Peak numbers of **Firecrests** *Regulus ignicapillus* at Dungeness were 25 on 24th and 28th October, but far more exciting was the unprecedented influx of **Goldcrests** *R. regulus*. Passage of the latter was normal until October, but on 10-11th a massive arrival was apparent on the east coast: at Spurn 250 were counted on 10th and 1,000 on 11th; at Holkham 500-1,000 were estimated on 12th; 600 were at Sandwich Bay on 10th; and at Dungeness there were 600 on 11th and 750 by 14th, with a total of 731 ringed during the month; record numbers occurred also on the Calf of Man, and 100 were found in one garden at Bishopstone (Kent) on 11th October. It is notable that in Finland 1,634 were trapped on the island of Signilsiar in September, 10,000 or more were on the same island on 29th September, and of that number 997 were ringed in just four hours. A **Spotted Flycatcher** *Muscicapa striata* at Boddam (Shetland) on 1st November was unexpectedly late, especially so far north. Some good 'falls' of **Pied Flycatchers** *Ficedula hypoleuca* occurred, 75 at Dungeness on 13th August being described as exceptional while 20 on the Calf of Man on the same day was a record, and on 16th 17 were found in Hyde Park/Kensington Gardens (Greater London). There were three November records of **Yellow Wagtails** *Motacilla flava*, at Chilwell (Nottinghamshire) on 4th (six), Dungeness on 7th and Loch of Strathbeg (Grampian) on 9th.

A smallish invasion of **Waxwings** *Bombycilla garrulus* was noted, principally from the end of October but with most being seen in November. The first were on 12th October at Fair Isle and Stakeford (Northumberland) (six), and in November the largest flock was one of 42 at Hamsterley Mill (Durham) on 29th. The earliest **Great Grey Shrike** *Lanius excubitor* appeared at Newton by the Sea (Northumberland) on 13th September, and this was followed by four at Spurn on 11th October, one at Fair Isle on 12th and five at Spurn on 15th. Only 13 or so **Red-backed Shrikes** *L. collurio* were reported, all on the east coast apart from a rather late bird near Churchill (Avon) on 11th October.

A large influx of **Mealy Redpolls** *Acanthis flammea flammea* was apparent from the last five days of September, when up to four were on Fair Isle: higher numbers were seen in October with several flocks of 100 in Shetland and a maximum of 500 on Fair Isle on 15th; the records seemed to be confined to the east coast. Of interest was a bird trapped at Dungeness which appeared to be a hybrid **Mealy** × **Arctic Redpoll** *A. hornemanni*; and at the same place on the previous day a **Redpoll** of the Greenland race *rostrata* was also trapped. **Bullfinches** *Pyrrhula pyrrhula* of the nominate northern race were also seen in October, in Tyne & Wear and Northumberland, and on Fair Isle regularly from 14th to 28th with a maximum of 14 on 22nd; three were at the last locality on 8th November. A male **Brambling** *Fringilla montifringilla* was seen near Bozenham Mill (Northamptonshire) on the very early date of 30th August, though few were reported in September; the main arrival occurred in mid-October and an incredible 2,250 were estimated at Spurn on 18th, when there were 600 at Dungeness. Fair Isle's first **Snow Buntings** *Plectrophenax nivalis* of the autumn arrived on 6th September (20) and the maximum

on any one day there was 1,200 on 6th November; most of the early arrivals were on the east coast, though one was on Skokholm (Dyfed) at the end of September; inland sightings were made at Staines Reservoir from 6th October, at Alport Castles (Derbyshire) on 18th, on Broomhead Moor (South Yorkshire) on 2nd November, at Belvide Reservoir on 7th and at Attenborough (Nottinghamshire) on 8th. Three early **Lapland Buntings** *Calcarius lapponicus* were on Out Skerries on 1st September, and one on Fair Isle the following day was the forerunner to that island's maximum of 20 on 24th; elsewhere about 20 birds were reported, including one inland at Hurworth Burn Reservoir (Durham) on 28th and, in the west, one on Skokholm on 16th and one on Lundy on 28th with two there on 29th; the highest reported number in October was ten or more at Cley (Norfolk) on 19th, and the only report from the west in that month was of one flying south at Berrow (Somerset) on 26th; November records came from Spurn, a total of about eleven between 1st and 26th, and Kent (five). On 10th October 1,000 **Chaffinches** *F. coelebs* flew north-west at Dungeness, but that was the only report received of any substantial movement of this species. Finally, there were two rather unusual reports from the east coast in October, the first a **Goldfinch** *Carduelis carduelis* on Fair Isle from 22nd to 26th and then a **Hawfinch** *Coccothraustes coccothraustes* at Spurn on 26th.



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British Birds

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Identification of European treecreepers

C. J. Mead and D. I. M. Wallace

INTRODUCTION

Although its arrival as a British bird was widely announced in January 1972, the Short-toed Treecreeper *Certhia brachydactyla* was not admitted to the British and Irish list until 1975, on the basis of a vagrant trapped at Dungeness on 27th September 1969 (British Ornithologists' Union, in prep). Fifteen other reports of coastal vagrants, breeding birds and inland singletons have not yet been fully reviewed but it is likely that there are several other acceptable records. Research into such records prompted a growing loss of confidence in the criteria of treecreeper identification extant in 1974 and the resulting need to review the entire subject. The outcome is far from pleasing.

Before 1820, nobody had suggested the presence of more than one *Certhia* species in Europe. In 1907, Dresser was still lumping them. Modern systematists have, however, successfully separated them and demonstrated marked subspecific radiation in both (e.g. Vaurie 1959). Research, both in the field and in captivity, continues (e.g. Thielcke 1972, Purroy 1973, Mead 1975, Osieck 1975). The product of our separate reviews of characters in the field (DIMW) and in the hand (CJM) does not confirm statements in the current literature dealing with identification. It shows them to be not inherently false but certainly facile. We are forced to express serious caveats on the differences in voice and bill/hindclaw ratios, hitherto supposedly safe bases for separating the two species. If further advances are to be made in treecreeper identification, the studies will need to be long and complex. The odds are very much against observers suddenly faced with just one strange bird.

IDENTIFICATION IN THE FIELD

A Short-toed Trecreeper in Britain is most likely to have originated from the seaboard of western Europe. It needs to be distinguished from the two races of the Trecreeper *C. familiaris* that occur in Britain. These are the partially migratory nominate race (so-called Northern Trecreeper), which is an occasional vagrant to North Sea coasts and isles, and the indigenous *britannica* which is a widespread resident in mainland woods in Britain and Ireland, reaches Stornoway in the Western Isles and undertakes occasional autumn movements (British Ornithologists' Union 1972). No differences in the shape, actions and general behaviour of *brachydactyla* and *familiaris* are known and both exhibit very similar, remarkably disruptive plumage patterns. Attention has previously been drawn to visible differences in both bare part lengths and plumage marks and these are now discussed.

Bill and hindclaw length

Typically, the bill of *brachydactyla* does look longer and more decurved or bent downwards than that of *familiaris*. As demonstrated later, however, there is no real difference between the mean adult bill lengths of the closest European populations of *brachydactyla* and the British population of *familiaris* and both show marked growth variation in bill length. Thus, while a long, bent bill may be a clue to *brachydactyla* it is not proof.

Although the hindclaws of trecreepers are surprisingly easy to see, visual judgement of their length is hardly practicable. Since the curve of the hindclaw varies in both species, the clearer dichotomy in structure is likely to be masked in the field.

Plumage

Compared with typical British and most Northern *familiaris*, west European *brachydactyla* have duller, greyer upperparts (with white spotting less obvious and distinctly less rufous or not at all rufous rumps) and dirtier, less contrasting underparts (often with throats only pure white, the rest sullied grey and flanks and vent usually buff or brown). They also have shorter, more indistinct supercilia. These differences, very evident in the vast majority of skins in drawers, support the practicability of field identification in well-marked birds, but it must be stressed that many *familiaris* in southern England are themselves dull birds with reduced spotting on the mantle, little rufous on the rump and obvious buff on the flank edges. When such birds are also sullied on the belly and vent (as loose plumaged juveniles often are), the danger of confusion is high. Photographs illustrating the two species have been published in Avon and Tilford (1975) (in colour) and in Osieck (1975).

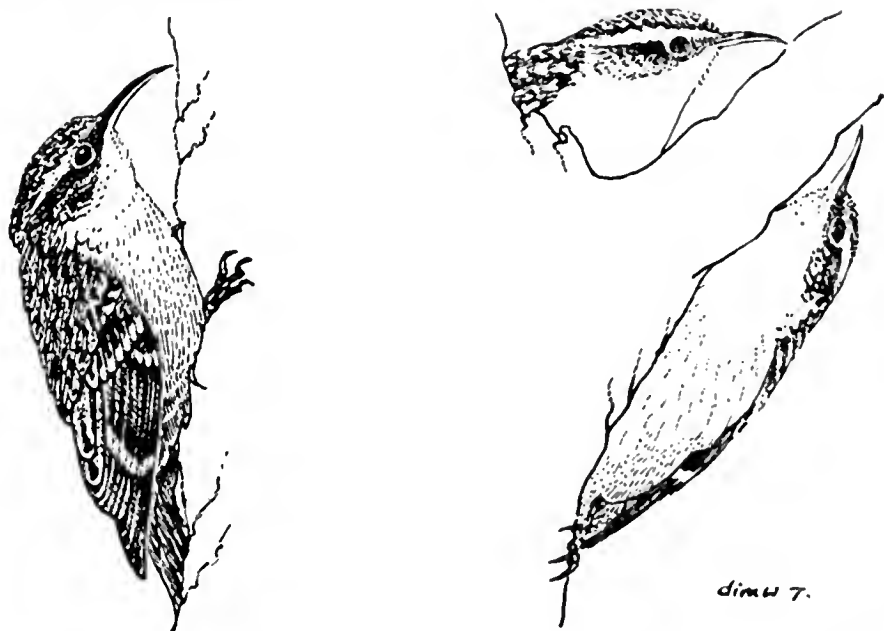


Fig. 1. European treecreepers *Certhia* spp. Compare typically dull Short-toed *C. brachydactyla* (left), with indistinct supercilium and dirty underparts, with typically clean Treecreeper *C. familiaris* (right), with obvious pale spotting and strong face pattern in Northern race (upper); beware southern British form (lower), which often has buff wash on rear flanks

It follows that only the combination of very dull plumage with an indistinct supercilium gives worthwhile cause to suspect *brachydactyla*. The complement of an obviously long, bent bill will further indicate that species (but the absence of such does not rule it out). Fig. 1 visualises some of the above points.

VOICE

Until 1972, the separation of *brachydactyla* from *familiaris* on differences in voice was thought to be a relatively simple and certain exercise. Then, however, Thielcke (1972) demonstrated that both species may learn at least part of the other's song pattern and that *familiaris* singing mixed patterns held territories against *brachydactyla*. It is clear that *familiaris* has less vocal rigidity than *brachydactyla* and thus there is the danger of the most infuriating plagiarism by the former (since, to make an odd call, it must presumably have heard something like the real thing from the latter somewhere). Remembering this, the essential differences and similarities in voice are now summarised.

Song

In full song, *familiaris* sings a phrase that is high-pitched (about 7 khz dropping to about 5 khz) and quite long, lasting nearly three

seconds on average. It is a silvery cadence, very thin and tremulous to begin with but sounding increasingly fuller and confident towards the end and with a noticeably accelerating pulse in the middle. As *The Handbook* (Witherby *et al.* 1938-41) states, the song suggests a loud Goldcrest *Regulus regulus* or, as E. D. H. Johnson has perceptively said (*in litt.*), a Chaffinch *Fringilla coelebs* raised a couple of octaves (and with basically the same rhythm and timbre). In addition *familiaris* has a sub-song which is shorter, more halting and less plaintive in quality. In distinct contrast, *brachydactyla* sings a phrase that is lower pitched (about 5 khz rising to 6 khz) and short, lasting just over one second. Importantly, its full song is much louder and has a more emphatic rhythm. It does not suggest any other species. Fig. 2 portrays the essential difference in song phrase. (The mixed songsters studied by Thielcke 1972 occasionally

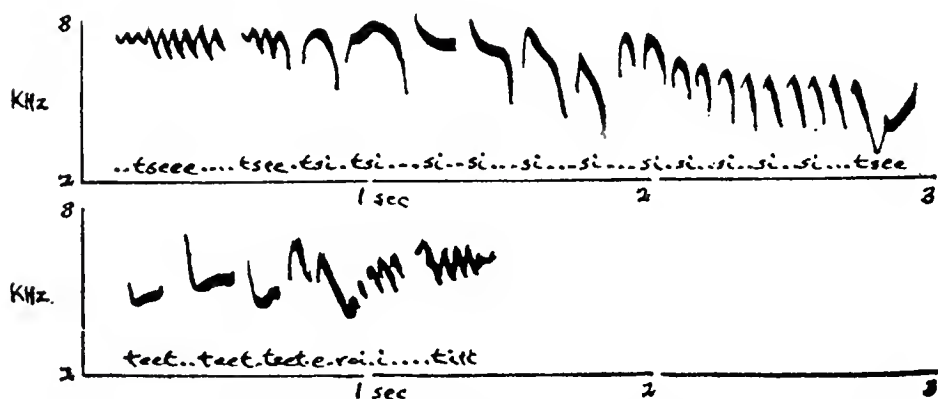


Fig. 2. Normal song phrases of (upper) Treecreeper *Certhia familiaris* and (lower) Short-toed Treecreeper *C. brachydactyla* (after Thielcke 1972)

amended the structure of notes but mostly they reassembled the two basic phrases in a wide variety of combinations.) It should also be noted that *brachydactyla* may sing less than *familiaris* during inter-specific competition (Schnebel 1972).

Calls

The *Field Guide* (Peterson *et al.* 1974) gives 'a thin high-pitched "tsee" or "tsit"' for *familiaris* and 'a high, shrill "srrieh" or "zeet"' for *brachydactyla*. If only it were that simple. Listened to carefully, treecreepers have many more calls than these. In special studies in 1972 and 1973, H. P. Medhurst and DIMW distinguished at least seven in the case of *familiaris* in Epping Forest, Essex, and K. E. Vinicombe at least six in the case of *brachydactyla* in southern France. There can be no doubt that the two species share calls that sound identical to human ears. Table 1 attempts to compare the two vocabularies, demonstrating in particular that calls like those of a

Table 1. Analysis of calls of Treecreeper *Certhia familiaris* and Short-toed Treecreeper *C. brachydactyla*

Commonest transcription	Character in Treecreeper	Character in Short-toed
'tsee'	Very thin, tremulous, barely audible, often trilled or uttered in series; also 'sie', 'zii', 'see-tee-see'	Thin, plaintive; also 'seee'
'tsit'	Thin, soft, not tremulous, repeated but rarely in series; also 'sit', 'tit', 'sit-tit'	Thin, high-pitched, repeated; also 'sit', 'tsup'
'tsreec' or 'srrich'	(i) Vibrant, medium-pitched, singly or in series, also 'sriiii' (ii) Shrill, piercing, tremulous, loud, very audible, often in series and with 'tsee' and 'tsew' interjected, with or without abrupt ending	Clear, explosive, loud, penetrating, singly or in series; also 'sree'
'tsiew'	Plaintive, medium pitch, singly or in series; also 'tsew', lower pitched	
'tsut'	Plaintive, loud, recalling Coal Tit <i>Parus ater</i> ; also 'tsu' and 'tsuit' as precursor to song or in series	Clear, high-pitched, explosive, loud, also recalling Coal Tit, singly or in series of three or four (with descending pitch); also 'tsoot'
'zeet'		Shrill, piping, explosive, loud, recalling Dunnock <i>Prunella modularis</i> ; also 'seek', 'peep', 'sreet' and 'tseep'
'chink'		Penetrating, quite loud, slightly recalling Chaffinch <i>Fringilla coelebs</i> but just disyllabic; also 'chip'

Coal Tit *Parus ater* are given by *familiaris*, that the first *Field Guide* transcription for *brachydactyla* is relevant to both species and that only two note types are unique to *brachydactyla*.

Happily, nobody has so far suggested that the 'zeet' note which recalls the penetrating monosyllables of several other species in a way that no call of *familiaris* does is anything but specific to *brachydactyla*. This is true also of the 'chink' call. It is worth stressing the fact that British observers do hear the voice of known Continental *brachydactyla* as immediately distinctive. They all comment on the loudness and clear emphasis of its calls compared with the sibilance

of most sounds uttered by *familiaris*. All in all, *brachydactyla* has a louder voice than *familiaris* and its less sibilant calls, particularly the 'zeet', are recognisable to the experienced ear.

HABITAT AND BEHAVIOUR

Recent research into the ecology of the two treecreepers in Lower Saxony, West Germany, by Schnebel (1972) has suggested that *familiaris* is the dominant sibling in areas where the two species cohabit. Furthermore it inhabits more species of trees, particularly broadleaved ones with slippery bark. Only the branches of the latter are readily climbed by *brachydactyla*, which shows a marked preference for oak *Quercus*. Schnebel stated that the difference in climbing ability is obvious and it seems that details of precise habitat and ecological behaviour will help identification. Schnebel never saw *brachydactyla* as any but the loser in clashes with *familiaris*. This suggests that *brachydactyla* may find it difficult to gain more than a few footholds in Britain.

Unfortunately, there is clear evidence from the Pyrenees that Schnebel's observations do not provide rules for the whole of Europe. Purroy (1973), in a full study of treecreeper distribution in various habitats from 750 metres to 1,900 metres in altitude, found that *brachydactyla* was favoured by human disturbance of natural habitats and an earlier start to its breeding cycle. In the Pyrenees, *brachydactyla* exhibited a wider habitat tolerance than *familiaris* and was the dominant species in the highest and lowest levels. It was certainly not 'the treecreeper of gardens' only. Clearly, there is much to be learnt of treecreeper biology.

Isolating vagrant *brachydactyla* from British *familiaris* in the field will be no easy task. The plumage overlap with southern English or atypical *familiaris* is wide and the difficulty (to untrained observers) of certain voice distinction creates formidable barriers to field identification. Separation of the two species is clearly practicable in Europe where both are present, but it has yet to be proven possible in Britain.

IDENTIFICATION IN THE HAND

Specific diagnosis of skins or live birds in the hand of very similar species is sometimes possible using the size of readily measured features. Just such a technique, involving bill and hindclaw lengths, has been published by Svensson (1970) for the two European treecreepers. Knowing that *brachydactyla* was supposed to have been discovered breeding in England CJM started to measure the bills and claws of all the treecreepers he handled from January 1970. The measurements of live birds came from a wooded area near Tring, Hertfordshire, and the calls, song and plumage of the birds

trapped and seen in the area conformed with *familiaris* in all particulars.

Since such fine differences in measurements are involved and they are not easy to reproduce between different observers, only those measured by CJM have been included. Metal vernier callipers were used and the results recorded to 0.1 mm. Fig. 3 shows precisely how they were taken. It soon became apparent that the measurements for the Tring population did not wholly conform with those given for either species by Svensson (1970). Since the explanation could lie in differences in measuring techniques, through shrinkage of the museum specimens measured by Svensson or because the Tring birds actually had longer bills, the study was extended to museum specimens.

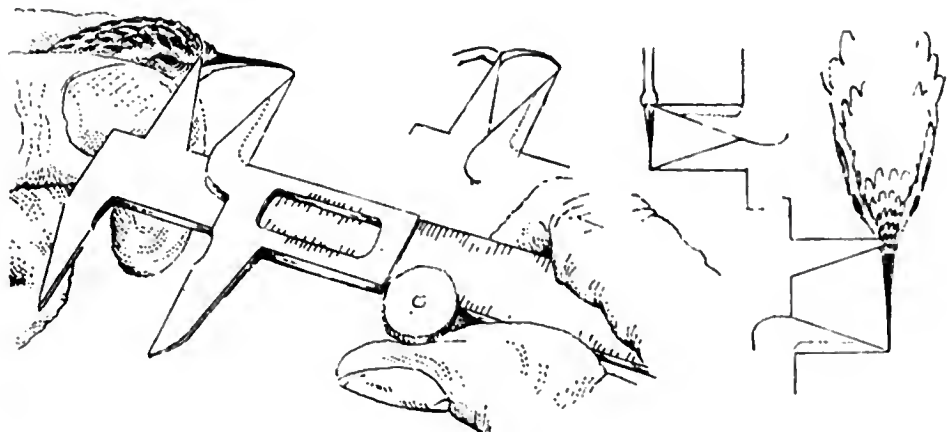


Fig. 3. The technique used in measuring bill and hindclaw lengths of treecreepers *Certhia* spp. The bill is measured from the tip to the angle formed above the bill by it and the skull, one arm of the callipers being tucked into this notch and the other screwed out until it reaches the bill tip. The hindclaw measurement is taken on the upper part from the tip to the edge of the skin sheath at the base

All the Palearctic *Certhia* specimens in the British and Liverpool Museum collections were measured during 1974. Although several races of each species have been described, the variations in measurements within named subspecies was wide and the skins were grouped on a geographical basis to provide samples from relatively compact areas. The results of this study have already been published (Mead 1975), but the information from populations within and close to Britain and Ireland will be used later. The conclusions of this analysis, relevant to the European populations, were as follows:

1. *Certhia brachydactyla* is a good species with a very significantly shorter hindclaw than *familiaris*. European population means for the former range from 7.49 mm to 7.87 mm compared with 8.91 mm to 9.28 mm for the latter. Unfortunately the theoretical and actual

ranges of these measurements overlap considerably in the region of 8 mm.

2. Unlike claw lengths, which show little geographical variation within Europe, bill lengths vary considerably. This variation, mainly in *brachydactyla* populations, means that, although the average European treetreeper of that species has a longer bill than a *familiaris*, some French populations have mean bill lengths very similar to those found in both British and European *familiaris*. Indeed the *brachydactyla* population (north-east France, the Channel Islands and the Netherlands) nearest to the sites in southern England where that species has been claimed has a mean bill length of 17.63 mm, only 0.01 mm longer than the mean for all British and Irish *familiaris*. Within Europe as a whole, only about 10% of the bill measurements for each species lie outside the range observed for the other.

3. Wing lengths of *familiaris* populations were, on average, longer than those of *brachydactyla*, but most measurements lay within the area of overlap. Unfortunately British *familiaris* have shorter wings than other European populations and are thus even closer to the European mean for *brachydactyla*. Irish birds have slightly shorter wings than those from mainland Britain (62.31 mm compared with 63.24 mm, $P < 0.05$) but, otherwise, in none of the features measured did any of the three populations from Great Britain and Ireland, which were treated separately, differ.

4. Bill width, at the nostril, was also measured but there was little variation within European populations and the difference between British *familiaris* and close populations of *brachydactyla* was negligible.

5. The feature advocated by Harrison (1935), who suggested that the outer web of the largest alula feather had a complete pale margin in *brachydactyla* which was lacking in *familiaris*, was also tested. Although more often right than wrong, up to 40% of the birds from European populations of *brachydactyla* and 17% of *familiaris* would have been wrongly assigned using this character alone. In any case it was often difficult to decide whether the margin was present or not.

6. Since many of the museum specimens being measured were sexed by their collectors it was possible to compare measurements within some populations by sex. The results showed a markedly greater sexual dimorphism in bill length than claw length. This means that the simple discriminant advocated by Svensson (1970) of $\text{hindclaw} = 0.456 \times \text{bill}$ will necessarily include a sexual bias.

The search for a means of specific identification was, of course, complicated by the results from live birds. The ideal was to find a discriminant function, involving as few measurements as possible, which would determine the species of any individual. The informa-

tion provided by Svensson (1970), in the first edition of his invaluable guide, gave *hindclaw greater than $0.456 \times \text{bill}$* for *familiaris* and *hindclaw less than $0.456 \times \text{bill}$* for *brachydactyla*. These formulae mean that, if bill is plotted on the y- and claw on the x-axis, all *brachydactyla* would be above and left of the line $x = 0.456y$ and all *familiaris* below and right of it. Fig. 4 shows that this was not so.

THE SEARCH FOR A NEW DIAGNOSIS

Fully-grown birds

Since measurements were now available, taken by the same person with the same equipment, for skins of both species and from live *familiaris*, plots could be constructed for fully-grown birds. In the first, fig. 4, skins from the two closest populations of *brachydactyla* (two regions including Belgium, the Netherlands, Channel Islands and north and mid-France) (Mead 1975) are plotted as stars, skins of *familiaris* from south and east England as solid dots and live birds from Tring as open circles with triangles. Where birds were retrapped and remeasured a mean measurement is plotted. The thicker, more vertical, line is the best discriminant on these data alone. The heavily circled symbols are the birds (nine out of 143 = 6.3%) which fall on this line or on the wrong side of it. Many more are within 0.5 mm of it (combining the two measurements): almost 50% of *brachydactyla*, 20% of live *familiaris* and 8% of *familiaris* skins. This line is *hindclaw* = $0.14 \times \text{bill} + 5.4$ and the other is Svensson's ratio, which would give 15 wrong identifications (10.5%).

Fig. 4 shows only birds from a very restricted area but, in dealing with the possibility of identifying a vagrant, other populations must be investigated. Fig. 5 shows, on the left, *brachydactyla* and, on the right, *familiaris* plots from a wider area. On each plot the thicker, left-hand line is *hindclaw* = $0.14 \times \text{bill} + 5.4$, but the thinner, right-hand line proved to be the best discriminant on these more extensive data; it is *hindclaw* = $0.14 \times \text{bill} + 5.6$. Table 2 summarises the performance of both discriminants and shows that the best efficiency is about 95%. This is on data provided by measurements made by one person and takes no account of individual systematic differences in technique which are very likely to exist. A comparison of the live bird measurements from Tring with those from British skins suggests that shrinkage in skins may account for a loss of almost 1 mm in bill measurement but that claw measurements are unaffected. Further problems may arise since both bill and claw, on full-grown birds, grow continuously. The data were analysed by three-month periods to see whether there were seasonal differences. The three-month means for both bill and claw are different, but not significantly so, and therefore date of capture does not seem to have a systematic effect on these measurements.

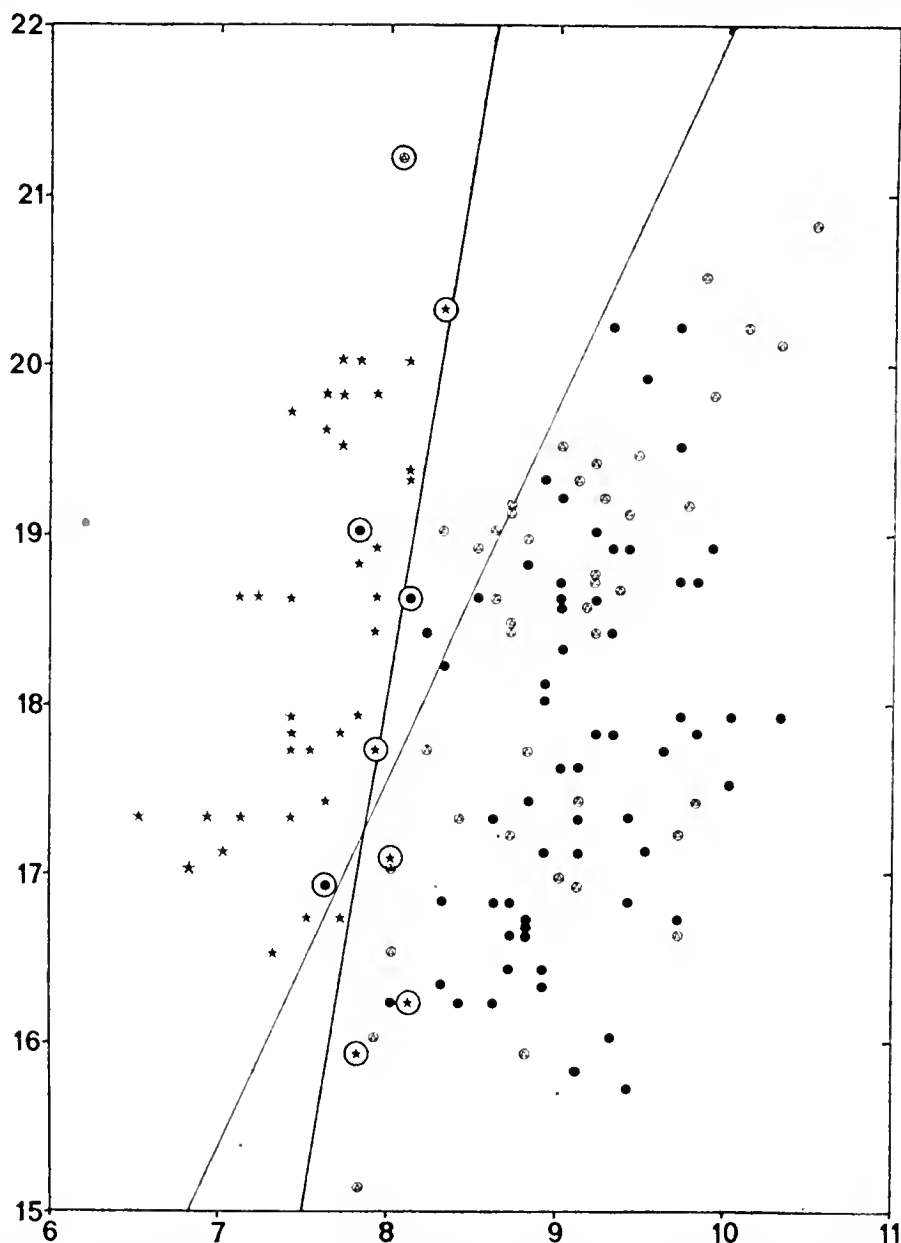


Fig. 4. Bill/hindclaw plotted for one population of Short-toed Treecreepers *Certhia brachydactyla* and two of Treecreepers *C. familiaris*. Stars mark *brachydactyla* skins from Belgium, the Netherlands, the Channel Islands and north and mid-France, dots *familiaris* skins from southern England, and triangles in circles live *familiaris* from near Tring. The thick line is the best linear discriminant between the species, though heavily circled records would have been incorrectly diagnosed; the thin line is Svensson's (1970) discriminant ratio

Young birds

The previous section was restricted to fully-grown birds. Most juvenile treecreepers may be aged through the summer and early autumn (sometimes to October) by their characteristically loose and fluffy undertail-coverts. Table 3 compares the measurements of

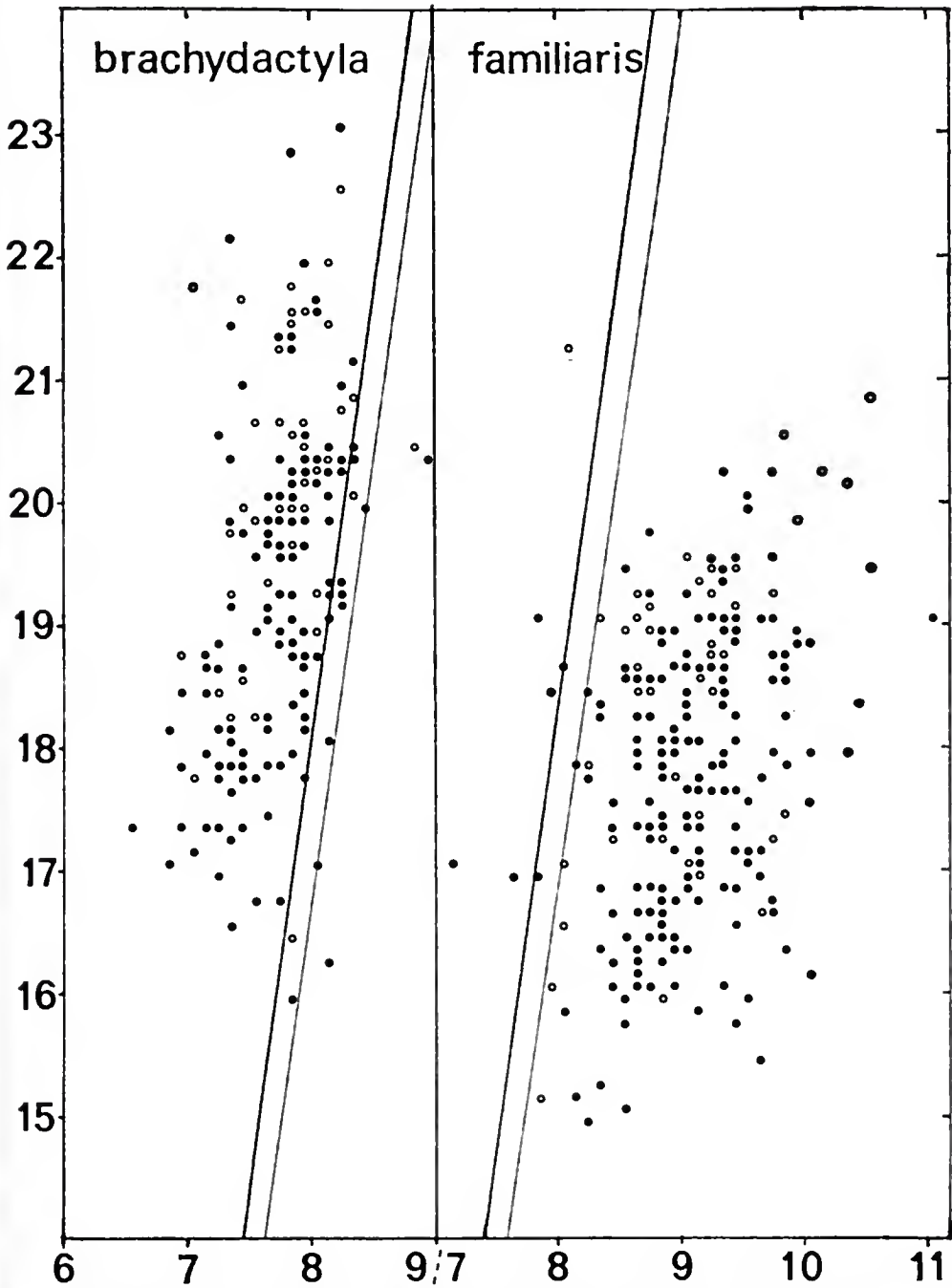


Fig. 5. Bill/hindclaw plotted for two populations of Short-toed Treecreeper *Certhia brachydactyla* (left) and two of Treecreeper *C. familiaris* (right). On the left, solid dots mark *brachydactyla* skins from mainland Europe and open circles those from Cyprus and North Africa. On the right, solid dots mark *familiaris* skins from Britain and Europe and open circles live *familiaris* near Tring. The thicker line (same on each plot) is the discriminant fitted to fig. 4 but a better function would be the thinner line to the right for these more extensive data

Table 2. Efficiency of two discriminant functions for specific identification of Treecreepers *Certhia familiaris* and Short-toed Treecreepers *C. brachydactyla* from the bill and hindclaw measurements plotted in fig. 5

'North Europe' includes Britain, Scandinavia, Germany, Poland and the Baltic States, and 'Mediterranean' covers Cyprus and North Africa. The Tring measurements are of live birds caught for ringing, while all others are of museum specimens

	TREECREEPER		SHORT-TOED TREECREEPER	
	North Europe	Tring	Europe	Mediterranean
Function: $\text{hindclaw} = 0.14 \text{ bill} + 5.4$				
Correct	159	41	103	37
Wrong	6	1	15	3
Function: $\text{hindclaw} = 0.14 \text{ bill} + 5.6$				
Correct	157	39	112	39
Wrong	8	3	6	1
TOTALS	165	42	118	40

juvenile and fully-grown birds: the former are between 8% and 12% shorter than the latter, which can cause additional confusion. In all four cases where juveniles were later retrapped as fully-grown birds, both measurements had increased, bills by between 1.8 mm and 4.0 mm and hindclaws by between 0.5 mm and 1.9 mm. This means that measurements can be of rather little help on young birds during June, July and August and may be open to some doubt for the next month or two. The inclusion of some young birds in his measured sample may partly explain the discrepancy of more than 1 mm between the mean bill length of some of Svensson's samples and those measured by CJM. Hindclaw measurements are in much closer agreement however: for the four paired geographical samples

Table 3. Mean measurements of bill and hindclaw for juvenile and older treecreepers *Certhia familiaris* from two sources

For each measurement the mean ± 2 s.e. and the sample size (in brackets) are given. Only the accurately dated museum specimens have been used here

	Juveniles	Older birds
Live birds: near Tring		
Bill	16.69 \pm 0.57 (26)	18.55 \pm 0.35 (58)
Claw	8.21 \pm 0.27 (26)	9.03 \pm 0.19 (58)
Museum specimens: Britain		
Bill	15.75 \pm 0.63 (8)	17.63 \pm 0.21 (122)
Claw	8.33 \pm 0.40 (8)	9.00 \pm 0.10 (125)

the difference in means was never more than 0.25 mm. Recently Osieck (1975) has published a bill/hindclaw plot demonstrating the area of overlap on Svensson's earlier criteria. On his data, the best discriminant is very near $\text{hindclaw} = 0.14 \times \text{bill} + 5.6$. This is that proposed on the data presented in fig. 4 and it is very encouraging that the results from two completely independent investigations should be so similar.

SUMMARY AND CONCLUSIONS

The problems of identification of Treecreepers *Certhia familiaris* and Short-toed Treecreepers *C. brachydactyla* in the field and in the hand are discussed. In the field length of bill and hindclaw are thought to be impracticable criteria; separation on plumage is possible with well-marked birds, *brachydactyla* being generally duller and greyer above, and dirtier below, with a less distinctive supercilium, than typical *familiaris*; many southern English *familiaris* are, however, dull and easily confused with *brachydactyla*. Voices are compared: the full song of *brachydactyla* is normally much louder and with a more emphatic rhythm; table 1 compares calls, many of which appear to be common to both species; generally *brachydactyla* has a louder voice and less sibilant calls. Where the two species exist together *familiaris* appears dominant (Schnebel 1972), though Purroy (1973) found *brachydactyla* to have a wider habitat tolerance and to be the dominant species at highest and lowest levels in the Pyrenees. Separation of the two species in the field in Britain has yet to be proven possible.

Bills and claws of live *familiaris* from near Tring, Hertfordshire, and of museum specimens of both species from various parts of their ranges were measured. Bill lengths varied considerably, though the average *brachydactyla* had a longer bill. *Brachydactyla* has a shorter hindclaw than *familiaris*, but a considerable overlap in the theoretical and actual ranges was apparent in the region of 8 mm. Wing lengths of *familiaris* were on the whole the longer but again a great area of overlap was evident. Sexual dimorphism was greater in bill length than in hindclaw length.

Svensson's (1970) criteria of *hindclaw greater than $0.456 \times \text{bill}$* for *familiaris* and *hindclaw less than $0.456 \times \text{bill}$* for *brachydactyla* were shown to be unsound. Measurements from a wider area of Europe, and North Africa, showed the best discriminant to be $\text{hindclaw} = 0.14 \times \text{bill} + 5.6$. The rate of growth of young birds means that measurements taken in June, July and August can be of little help. A bill/claw plot by Osieck (1975) showed $\text{hindclaw} = 0.14 \times \text{bill} + 5.6$ again to be a good discriminant.

Both in the field and in the hand the identification of the two species is difficult. While differences do exist (and no doubt attach

to their speciation), the observation of such may be impracticable in many circumstances, and particularly in those likely to surround the chance record of a single vagrant *brachydactyla* in Britain. Recent research has shown that previous statements on field identification are dangerously facile, while an extensive review of the measurements of both preserved and live specimens has upset the original criteria set by Svensson (1970) for the separation of birds in the hand. A much wider overlap has been demonstrated in all characters and the risks to bird identification from varying human perception have become nowhere more apparent than in this subject.

This said, we do not doubt that some *brachydactyla* are safely separable from even atypical *familiaris* and that it is worth while to concentrate on every suspect bird. Where a bird is caught, reference to this paper or to Svensson's revised statement (1975) should guide observers through the morass of previous comments and reviewing committees through the confused criteria. Finally, we must stress again the need for disciplined, precise measurements. Anybody wishing to tackle this problem properly must be prepared to measure all the treecreepers he catches in order to determine a firm basis for comparison. Only with this will the discriminants evaluated here help to support certain identification.

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Ruddy Ducks in Britain

Robert Hudson

INTRODUCTION

The Ruddy Duck *Oxyura jamaicensis* is one of five introduced birds (three waterfowl and two pheasants) that were admitted to the British and Irish list in 1971, when it was accepted that they had succeeded in establishing self-maintaining feral populations in these islands (British Ornithologists' Union 1971). Some notes on the status of the present species were given by Parslow (1973), in the course of a general review of British and Irish breeding birds; but, hitherto, no full account of the Ruddy Duck in this country has appeared, despite the growing volume of observations scattered in county and regional bird reports and bulletins. This paper is intended to correct this deficiency, and at the same time ensure that the early history of the colonisation of Britain by the Ruddy Duck is better documented than has been the case for most introduced species.

AVICULTURAL BACKGROUND

The Ruddy Duck, a North American species, is known to have acquired feral status mainly through strays from the Wildfowl Trust's collection at Slimbridge in Gloucestershire. Therefore some account of the avicultural background is relevant, and this has been provided (*in litt.*) by Wildfowl Trust staff.

Until fairly recently this species was regarded as difficult to breed or even keep in captivity, and very few waterfowl collections contained it. During the 1930's a nesting pair was held at Walcot, Shropshire (*Avic. Mag.*, 1938: 104-105), but this collection was dispersed during the Second World War. The post-war reappearance of the species in British aviculture was initiated by the Wildfowl Trust, which imported three pairs from the USA in 1948; these began breeding at Slimbridge in 1949. However, young Ruddy Ducks proved difficult to rear by the artificial techniques then in use. It was soon found that the best results could be obtained by permitting parents to rear their own young, and from 1955 most Slimbridge pairs were allowed to do so; four young were raised naturally in 1952, five in 1954, twelve in 1955, 17 in 1956, about 40 in 1957 and again in 1958, and between ten and 40 annually thereafter (see *Wildfowl Trust Annual Reports*).

It has long been the policy of the Wildfowl Trust to pinion the young of non-native ducks as far as practicable. Where Ruddy Ducks were concerned, this worked well provided the nests were located before incubation commenced, so that the hatching date

could be calculated. (The ducklings remain in the nest for several hours after hatching, and it is then they must be caught for pinioning.) Even small ducklings, once they have taken to the water, can dive well, and they cannot then be caught without causing an unacceptable degree of disturbance in the pens, which is especially to be avoided during the breeding season. As the Slimbridge breeding stock increased (three pairs in 1955, ten by 1958) not all nests were found in time, and so some broods escaped pinioning.

The first full-winged young left Slimbridge in the winters of 1952/53 (two) and 1954/55 (one); but the first major departure occurred in the autumn of 1957, when up to 20 birds escaped (Ferguson-Lecs 1958). No accurate figures exist for the numbers of Ruddy Ducks which left Slimbridge in subsequent years; but S. T. Johnston believes that 70 birds would be an approximation for the total number of escapes up to his retirement in 1973, most of them during the first half of the period. Certainly all full-winged Ruddy Ducks left Slimbridge during the terrible winter of 1962/63, when many of the pinioned birds succumbed. Since that time fewer birds have avoided pinioning, though there remains the problem of the occasional Ruddy Duck egg being laid in another species' nest and overlooked; while from 1973 Ruddy Duck broods have again been reared artificially. In recent years (at least since 1969) it is unlikely that more than one or two individuals per annum have escaped from Slimbridge.

Ruddy Ducks are now included in a number of specialist waterfowl collections elsewhere (Martin 1974), though no complete list is available. Several Wildfowl Trust birds were taken in 1957 to the Peakirk collection in the Soke of Peterborough; but fewer young are reared there, and the number of strays has always been insignificant. A fair number of young are reared in private collections at Apethorpe (also in the Soke of Peterborough), at St Neots in Cambridgeshire, near Grimsby in South Humberside, and at Monken Hadley near Barnet in Hertfordshire. In such collections the emphasis is on artificial rearing, improved techniques having been devised, so that the majority will be pinioned (Dawson 1974, Wildfowl Trust); but it is known that over the years a number have been allowed to fly free from the Monken Hadley collection. Away from centres of feral breeding, Ruddy Duck records are often published in local bird reports as referring to probable escapes; some undoubtedly are, especially in south-east England, but, in practice, escapes must nowadays be well outnumbered by wandering birds of feral origin.

The Wildfowl Trust does not now countenance the accidental or deliberate releasing of non-native birds into the wild. Ruddy Ducks got away and established themselves ferally at a time when

the potential dangers of introducing alien species were not so clearly appreciated as they are now. However, in the present case it must be conceded that no harm appears to have been done to any native species or habitat, nor is there any danger of this essentially aquatic species becoming an agricultural pest. This is just as well because, as the following sections will show, feral Ruddy Ducks are successful and increasing, and all the signs are that they are here to stay.

FERAL DISTRIBUTION

The first Ruddy Ducks reported at liberty in this country were in 1954, when single drakes were seen at Hingham, Norfolk, in April and at Carsebreck, Perthshire, in June (*per* Wildfowl Trust); these were 250 km and 510 km respectively from Slimbridge, and presumably referred to one or both of those which escaped from there in the 1952/53 winter. There is also a puzzling record of five stiff-tail ducks (three males, two females), possibly *jamaicensis*, seen on Aqualate Mere, Staffordshire, in August 1954; if these were Ruddy Ducks they would be difficult to account for (exceeding the number of Slimbridge escapes up to then), but the description on Slimbridge files is not wholly satisfactory.

The initial intimation that a feral population might develop in Britain was given by King (1961). In 1957, the first year that a substantial number left Slimbridge, a young Ruddy Duck appeared in November on Chew Valley Reservoir in what is now the county of Avon. During the ensuing winter the number present at Chew increased to four, while four birds (presumably the same ones) were also seen for long periods on nearby Blagdon Reservoir, as well as a single bird on Barrow Gurney Reservoir—making five in all. By the spring of 1958 it was apparent that these were all drakes, as also were the one or two additional immatures which arrived in 1958/59. According to contemporary *Somerset* and *Bristol Bird Reports*, the first females appeared at Chew in December 1960; but King (1976) has stated that he saw a brood of ducklings there in May 1960. A single pair bred again in 1961, and this species has probably nested there in most years since.

It has been generally understood that the English feral population arose solely from Slimbridge escapes and their progeny (e.g. Campbell and Ferguson-Lees 1972). However, in the early years one deliberate release was made by the Wildfowl Trust, with three of four immature females from Slimbridge being turned down on Chew Valley Reservoir in the autumn of 1961 (B. King and Wildfowl Trust, *in litt.*). This was done ostensibly to provide mates for the drakes already present, though it should be noted that these young females were released *after* feral breeding had occurred there.

In the event, this deliberate release had no discernible effect on the development of a feral population, as is shown by the fact that the Chew breeding numbers remained static at one or two pairs until the 1970's (see below).

In September 1959 Ruddy Ducks also began appearing on certain Staffordshire reservoirs, where feral breeding was confirmed in 1961. These west midlands birds, now breeding in six or seven contiguous counties, arrived and multiplied unaided, and soon came to outnumber the lower Severn breeding population. This west midlands stock is also assumed to be derived from full-winged Slimbridge escapes and their progeny (e.g. Lord and Munns 1970), and I have no doubts that this view is correct, notwithstanding the problematical (and indeed questionable) 1954 record from Aqualate Mere mentioned earlier. Certainly, the numbers of Ruddy Ducks known to have left Slimbridge are well in excess of those which settled to breed in lower Severn counties.

Details of subsequent expansion and of present status are given below under counties, beginning in the south-west and continuing northwards.

Avon First bred in 1960 on Chew Valley Reservoir; this remains the sole Avon breeding site and only one or two pairs nested up to 1971. Four pairs summered in 1972, six in 1973 and 1974, and about the same number in 1975; but not all of these necessarily attempted nesting. Significant autumn/winter flocks are a regular feature, with some commuting between Chew and Blagdon Reservoirs though the latter has held most in recent winters; these flocks generally reach peak numbers about December, and disperse during March. Combined totals for these two waters have increased steadily: November 1962, seven; December 1963, 15; October 1966, 24; February 1969, 42; January 1971, 55; January 1973, 68; December 1974, about 110; November 1975, about 120 (111 on Blagdon). The majority of these are winter visitors from elsewhere (a count of 32 at Chew in September 1975 indicated the maximum size of the local population), but the areas from which they are drawn have yet to be confirmed. (See discussion under POPULATION AND DISPERSAL.) (See also postscript on p.142.)

Gloucestershire Surprisingly, the species is not mentioned at all in *Gloucestershire Bird Reports*, whose editors are perhaps conditioned to ignoring strays from Slimbridge. Atkinson-Willes (1963) mentioned breeding on pools at Frampton-on-Severn, but the year of commencement is not recorded; a pair attempts to breed there in most years, though few young are reared, perhaps owing to predation by Pike *Esox lucius* (M. A. Ogilvie). The maximum number seen there is 14, in November 1969. No other Gloucestershire feral breeding sites are known.

Hereford & Worcester Since 1967 Ruddy Ducks have occurred regularly in Westwood Park and Upton Warren (both near Droitwich), and nesting was proved at both sites in 1971; in 1975 one pair bred at the former and two or three pairs at the latter. At Pirton Pool (near Pershore) there have been almost annual spring or summer occurrences from 1970 (four birds present in June 1972); but nesting remains unproven. Further west a single drake was seen at Hereford in January 1963, but no more until July 1975 when a pair was located on Eywood Pool (near Titley), a suitable breeding site (A. J. Smith).

Warwickshire Records from 1962; annually from 1971, following continued increase in adjacent Staffordshire. Apparently nesting has not yet been formally proved, but probably is occurring. In 1974 up to four birds were present on Alvecote Pools from April to December, a pair was seen in Packington Park in July and August, and up to five birds (some juveniles) were present on Middleton Hall Pools between July and November. Birds were again present at Alvecote and Middleton Hall in summer 1975. Future colonisation seems assured, if this has not already occurred.

Staffordshire First bred in 1961, when single broods were seen on Gailey and Belvide Reservoirs (Lord and Munns 1970). There has been only one subsequent definite breeding record for Gailey (in 1962), but Ruddy Ducks are thought to nest most years at Belvide, where there were three pairs in 1962 and 1974 (otherwise one or two). In recent years they have occurred regularly in summer on Copmere near Eccleshall (breeding from 1968, four pairs displaying in April 1974), on White Sitch near Weston-under-Lizard (breeding proved in 1971 and 1972, probably regularly since), at Chillington near Codsall (probably bred 1974, proved 1975), and on the heavily-reeded Aqualate Mere (assumed to be breeding; five pairs present in April 1974). Betley is another possible nesting site. Staffordshire is also notable for its autumn/winter flocks, involving regular movement between two main centres—Belvide and Blithfield Reservoirs. In recent winters flocks have formed on Belvide during September–November, and around November–December many have transferred to Blithfield and remained there until the spring dispersal (March–April). Total numbers have increased steadily despite a temporary setback after the severe winter of early 1963: December 1962, 13; winter 1965/66, 15 to 20; September 1967, 20 to 25; November 1969, 35 to 40; December 1972, 70 to 80; November 1974, 110; October 1975, about 190 (181 at Belvide). Many must be winter visitors from elsewhere. (See postscript on p.142.)

Salop First seen in 1962; first proven breeding in 1965 at Crosemere, where it has probably nested annually since, with four pairs present in May 1975 (C. E. Wright). Since 1969, Ruddy Ducks have been reported with increasing regularity from small pools and meres in most parts of the county, but especially from the area between Ellesmere and Market Drayton and north to the Cheshire boundary. Breeding has occurred at Ossmere since 1971 (three pairs in 1974; in 1975 two pairs summered but did not breed owing to low water levels), and at Hawk Lake since 1974 (six males, five females and six ducklings in September 1975); and is thought to be occurring at Cloverley Pool (two pairs present in May 1975) and nearby Shavington (three pairs in June 1975), while in 1975 summering pairs were also located on Berth Pool and Birchgrove Pool, both in the Fenemere group near Baschurch. There have also been summer reports from several other sites where it is conceivable that nesting may have been attempted: Colemere, Tittenley (near Shavington), Norton Mere (near Tong), Allscott Pools (near Telford), and Marton Pool (near Chirbury). Small numbers winter on Crosemere (eleven birds in January 1975), and at least occasionally on Ossmere; but the general paucity of records at that season, plus the fact that the largest flock reported from the county in any month is one of only 17 birds (Crosemere in November 1969), suggest that the majority leave Shropshire for the winter.

Cheshire Date of colonisation is uncertain. It was said in 1968 that Ruddy Ducks had occurred on several meres, most often Barmere (near Malpas); the species was not mentioned in local bird reports for 1969 or 1970, but in 1971 it was stated that this duck had bred previously on Barmere, while the (nearby) 'colony at Quoisley Mere continues to flourish'. Breeding occurred at Barmere, Cholmondely and probably Quoisley (all near the Salop boundary) in 1972, and this is believed

still to be the main Cheshire population centre; 35 birds were present on Barmere in October 1974 (the largest county flock recorded), while there were three males (presumed breeding) on Quoisley Mere in June 1975. Further north, in the Macclesfield area, it has occurred annually since 1970, breeding at least from 1973, at Capesthorpe and Redesmere, and there were three pairs on the latter in 1974. In 1975 a pair nested on Oakmere (near Delamere) (*per* Eric Hardy). The aforementioned are the only confirmed breeding waters, but probably there are others; there were two or three displaying pairs on Rode Pool (near Alsager) in 1973, 1974 and 1975, though no young have yet been seen (R. West), and other summer occurrences have been reported from Marbury (near Malpas), Combermere, Doddington Park and Budworth Mere. The Ruddy Duck appears to be successful and increasing in Cheshire, but numerical data are sparse. Apparently a few birds winter on Barmere (maximum of 13, in January 1974), but the small number, and rarity elsewhere at that season, indicate that most Cheshire birds move away for the winter. Rostherne and Tatton Meres (near Knutsford) have provided annual non-breeding records from 1972, and are the northernmost 'regular' localities in Britain at present.

Derbyshire Occasional visitor from 1963, but with an increasing number of records during the last three years. In 1975 a drake was present in Osmaston Park (near Ashbourne) during July; this site was not visited in August, but a female with one half-grown duckling was seen there in September (Miss K. M. Hollick).

Leicestershire First reported in 1961 but only an irregular visitor until 1973, in which year two pairs bred successfully at Swithland Reservoir, as did two pairs in 1974. Now resident, with some commuting between there and nearby Groby Pool. In 1975 three pairs were displaying at Swithland in spring, and two broods were noted (April, June) though apparently no young were reared; while a pair also summered on Groby Pool, where display was seen but no evidence of breeding was obtained. There were eleven Ruddy Ducks in Leicestershire, all at Groby Pool, in December 1975 (Miss J. Ironside).

Hertfordshire First reported in 1960. One pair bred on the Tring Reservoirs in four consecutive years, 1965 to 1968, but failed to colonise for reasons unknown. Since that time the Ruddy Duck has been seen only occasionally there or elsewhere in the county. Hertfordshire is well separated from other areas of feral breeding, and records here may relate to strays from an ornamental waterfowl collection at Monken Hadley near Barnet.

Some mention of wandering Ruddy Ducks will be made in the following section. It proved impossible to gather non-breeding records systematically since the majority of county bird reports did not bother to record this species until its formal admission to the British and Irish list in 1971, and some still do not do so.

POPULATION AND DISPERSAL

Ruddy Duck drakes are conspicuous, and occupied waters are therefore unlikely to be overlooked to any significant extent, with the possible exception of lakes in private parks to which bird-watchers have limited access. However, proof of breeding is more difficult to obtain; females are much duller birds, their nests are

well concealed, while the species tends to breed late in the summer when broods can remain for much of the time within the thick cover of reed beds. This has to be borne in mind when interpreting the foregoing distribution paragraphs.

Based on the records given under the previous section, it would seem that current county totals of pairs are: Avon, five or six; Gloucestershire, one; Hereford & Worcester, three to five; Warwickshire, probably one or two; Staffordshire, ten to 15; Salop, about 15; Cheshire, twelve to 15; Derbyshire, one; and Leicestershire, two or three. This indicates a national total in the region of 50-60 feral nesting pairs, spread over nine counties.

In 1961 the English feral population consisted of three known breeding pairs, rising to six in 1962 (Avon one, Gloucestershire one, Staffordshire four). Following the severe winter of 1962/63, which caused widespread avian mortality, only four breeding pairs of Ruddy Ducks were known in 1963 and 1964. However, the national total returned to six pairs (in five counties) in 1965, and increased steadily thereafter—at least ten pairs (five counties) in 1968 and 20 pairs (six counties) by 1971, about 35 pairs (seven counties) in 1973, and 40 to 45 pairs (eight counties) in 1974. On the basis of the somewhat incomplete data available on breeding pairs and winter flock counts, it would seem that during the period 1965-75 the overall rate of increase averaged about 25% per annum.

As suitable waters become colonised, it is inevitable that this rate of expansion will slow down. The increase during the last decade has doubtless been helped by the series of mild winters, while the virtual absence of shooting pressure must have aided the species also. However, the Ruddy Duck could hardly have established itself so quickly and so firmly as a feral species unless there had been a vacant niche for another freshwater diving duck adapted to breeding on smaller waters. The degree of ecological separation from the native Pochard *Aythya ferina* and Tufted Duck *A. fuligula* has yet to be ascertained, though the latter is known to take a much higher proportion of animal foods.

The isolated Leicestershire 'colony' appears to be discrete at all seasons, the birds wintering on or near the natal reservoir. Elsewhere, there is a pronounced tendency for regular seasonal displacements, with substantial winter flocks forming on certain reservoirs in Avon and Staffordshire, and involving larger numbers than breed or are reared in those counties. As explained previously, there are rather few nesting pairs in lower Severn counties, the main breeding strength being in the west midlands. From this, it follows that the substantial numbers of winter visitors to the Avon reservoirs must come from the west midlands, possibly involving some movement up and down the River Severn, which flows

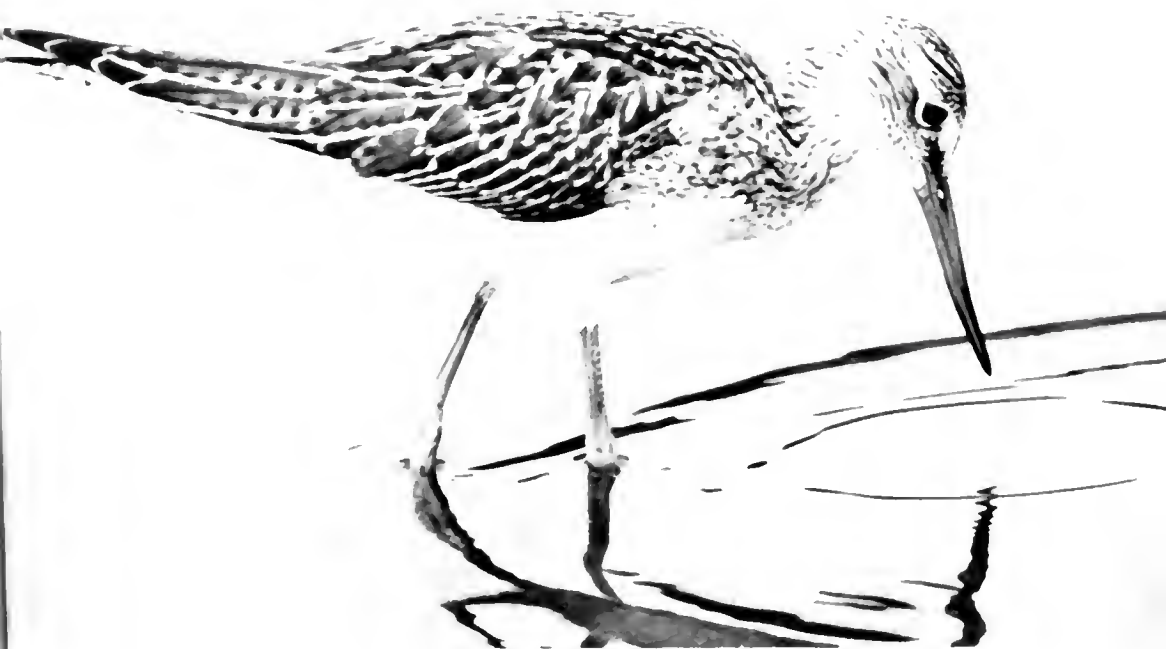


PLATE 13. Above, Greenshank *Tringa nebularia*, showing fine detail of plumage and exact shape of bill, August, 1975. Below, Grey Plover *Pluvialis squatarola* in characteristic stance on mud, November, 1969; note again the exceptional detail (photos: J. B. and S. Bottomley) page 155, all photographs Cornwall





PLATE 14. Above, the swift running of this Sanderling *Calidris alba* has been frozen by the camera, August, 1966. Below, a bathing Dunlin *C. alpina* leans forward and splashes water over itself, August, 1975 (photos: J. B. and S. Bottomley)



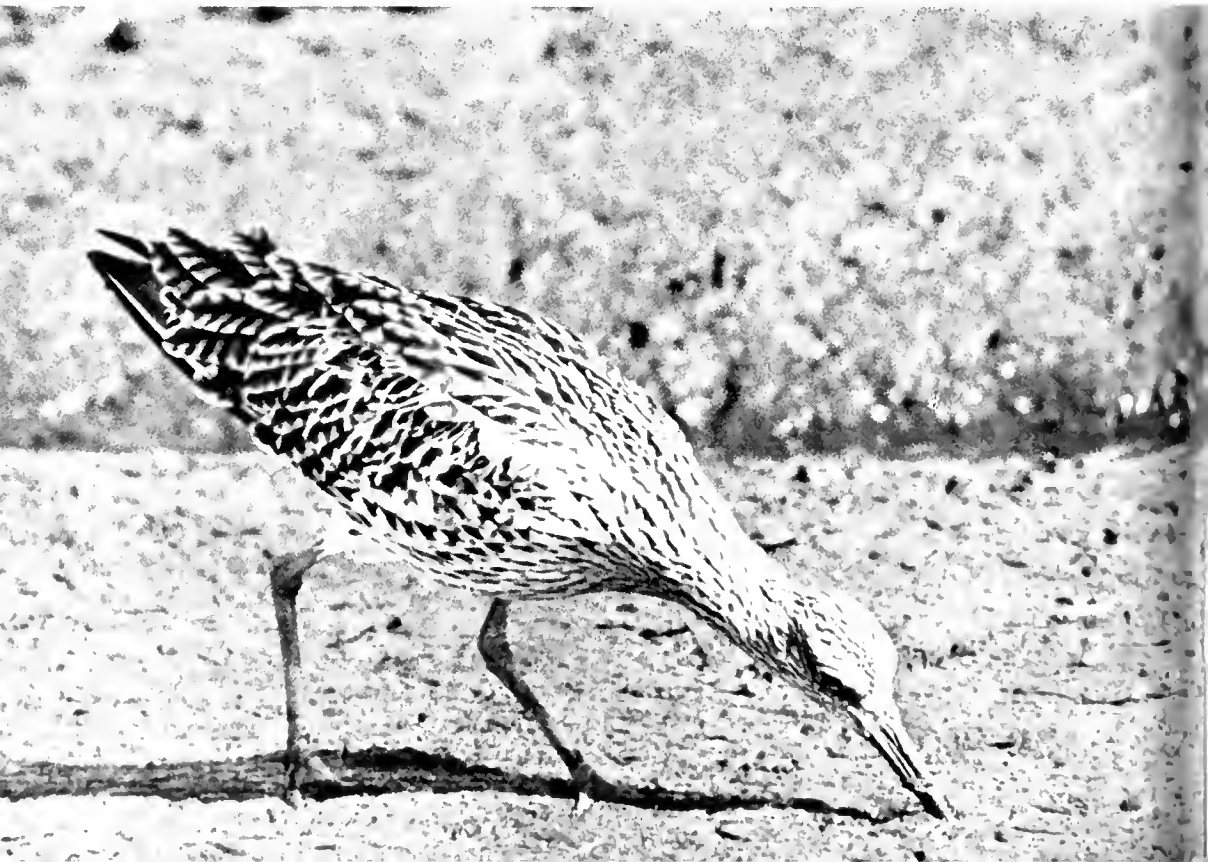


PLATE 15. Above, Knot *Calidris canutus* standing motionless in water, September, 1975. Below, Little Stint *C. minuta*, September, 1967; the pale lines on the back indicating immature plumage are clearly visible. photos. J. B. and S. Bottomley





PLATE 16. Above, a delicate drop of water on the bill, a Black-tailed Godwit *Limosa limosa* stands in quite typical pose, September, 1970. Below, a very unusual shot of a Curlew *Numenius arquata* with most of its bill buried in the mud and presenting a puzzle picture, August, 1969 (photos: J. B. and S. Bottomley)



through Salop and the old county of Worcestershire. It is noticeable that the Staffordshire flocks reach a peak in late October or November, at least a month earlier than in Avon; and it has been speculated that there may be onward movement from the former to the latter. An examination of winter numbers in Staffordshire suggests that some such movement is possible, but only on a small scale. During the 1974/75 season the two main Staffordshire reservoirs together held 94 in October and 110 in November and, though lower numbers (up to 80) were reported there in December and January, 92 were counted in February; while in the closing months of 1975, 181 were present in October and up to 150 were accounted for during November-December. On this basis, it would seem that many, if not the majority, of Avon's winter visitors must fly there direct from breeding waters. There are no ringing data concerning movements within Britain, and at present the natal counties of Avon's winter visitors are unknown. The early flocking on Belvide Reservoir in Staffordshire (in 1975 there were 100 as early as 6th September) could be accounted for by this being a major assembly point for non-breeders and failed breeders. (See postscript on p. 142).

In the closing months of 1975 there were about 120 birds in Avon, about 190 (apparently dropping later to about 150) in Staffordshire, and eleven in Leicestershire. Assuming that there were also small numbers wintering in Salop and Cheshire as in previous years, and allowing for scattered birds elsewhere at that time (e.g. three or four each in Derbyshire and Northamptonshire), it would seem that the 1975 post-breeding population was in the order of 300 to 350 birds. This includes adults, juveniles and other immatures, and it should be noted that most Ruddy Ducks do not breed until two years old (Ogilvie 1975).

Ruddy Ducks are seen from time to time not only on non-nesting waters in colonised counties, but also in other counties, sometimes far from any breeding centre. Since many Ruddy Ducks do not reach maturity until two years of age, it seems likely that these wanderers include immatures prospecting for future nesting sites. For this reason alone, all such occurrences are worth recording.

It is impossible to be sure whether isolated records in uncolonised counties relate to wandering feral birds or to strays from ornamental waterfowl collections, though (as mentioned earlier) the latter are believed to be very much in a minority. Escapes are no doubt equally capable of moving long distances. Before feral breeding began there were isolated Ruddy Duck records from places as far apart as Perthshire, Lancashire, Merseyside, Norfolk, Essex, Berkshire and Buckinghamshire, which, presumably, related to wandering Slimbridge escapes. As would be expected, reports of itinerant birds nowadays come most often from counties adjacent

to those in which there is feral breeding, notably Somerset, Wiltshire and Northamptonshire; in the latter, a pair was seen on Naseby Reservoir in June 1975 though there was no adequate follow-up to check on possible nesting (C. J. Coe *in litt.*). Had this paper been written six months earlier, Derbyshire would also have been included here, but there was a breeding record in the county in September 1975; it remains to be seen whether this will be consolidated. In recent years there have been a growing number of occurrences in Cambridgeshire and the Home Counties—Greater London (including a party of five on Island Barn Reservoir in June 1973), Essex, Hertfordshire (has bred) and Buckinghamshire; but records from the south-east are complicated by known escapes from the Hertfordshire collection.

Most of Wales is too high and rugged for this species, which is only a straggler to the Principality; single birds were seen in Mid Glamorgan in September 1972 and South Glamorgan in January 1973, a non-breeding pair summered at Montgomery, Powys, in 1974 (R. R. Lovegrove *in litt.*), and one was seen in Clwyd in January 1970; these counties are all within reasonable distances of breeding centres (lower Severn, Salop and Cheshire respectively).

To the north of the breeding range, Ruddy Ducks were recorded in Lincolnshire in 1968, Greater Manchester in 1975, Lancashire in 1959, 1968, 1972 and 1975, and in North Yorkshire in 1968, 1969 and 1974. Scotland has produced two records to date; one from Perthshire in 1954 has already been mentioned, but is easily eclipsed by the appearance of a drake in May 1974 on the island of Unst in Shetland. The latter was 840 km from the nearest feral breeding site, though its actual origin it is impossible to decide.

HABITAT AND BREEDING

The nest of the Ruddy Duck is usually a platform of rushes or reeds concealed in lush aquatic vegetation, often a floating structure, like that of a Coot *Fulica atra*, anchored to stems in a reed bed, occasionally in a clump of rushes surrounded by water. It follows, therefore, that a breeding water should have one or more sizeable areas of emergent vegetation, normally dominated by reed *Phragmites*, bulrush *Scirpus* or reedmace *Typha*. Another requirement is that the water must not be too deep, or at least have shallow edges or bays, since Ruddy Ducks feed on waterweed and on insect larvae and aquatic plant seeds obtained by straining bottom ooze during underwater dives to depths of about three metres (Ogilvie 1975, Siegfried 1973). Flowing waters such as rivers are avoided, the preference being for freshwater pools (including some flooded gravel pits), lakes and reservoirs, large or small. Meres used for breeding in the west midlands may be only three ha in extent,

while, at the other extreme, Ruddy Ducks breed on some large man-made reservoirs where, however, breeding densities are restricted by the areas of emergent vegetation available for nesting. Thus, Chew Valley Reservoir has the low density of five to six pairs for its 500 ha.

At other seasons, too, Ruddy Ducks remain on still, freshwater bodies; rarely are they encountered even then on rivers, and I know of only two occurrences on tidal water: a party of five in the Dee estuary off Hilbre Island, Merseyside, in September 1959 (*Brit. Birds*, 52: 436-437) and one at Chittening on the Severn estuary in December 1974. Went (1975) thought the Merseyside record indicative of transatlantic vagrancy, but a Slimbridge origin seems to me more likely. There is a marked tendency for feral Ruddy Ducks to vacate the smaller breeding pools and meres in autumn and winter, when large flocks develop on certain reservoirs, notably at Chew Valley, Blagdon (150 ha), Belvide (80 ha) and Blithfield (320 ha). All of these are characterised by having largely natural margins and shallow bays; large reed beds are not essential outside the breeding season, and do not exist at Blagdon and Blithfield Reservoirs. The winter aggregations are more often long, straggling lines of birds than compact flocks, and at times they are scattered among rafts of other diving ducks.

Ruddy Ducks are aquatic birds at all times; only on rare occasions does the single bird come out of the water to feed on the banks. Their legs are set well back like those of grebes (*Podicipitidae*) so that they walk awkwardly on land, and no doubt this is one reason why their nests are usually over water rather than ashore. When the female is flushed at the nest, she is apt to dive and resurface in the centre of the pool, while alarmed birds may swim with only the head above water. These are further grebe-like characteristics. On the water, Ruddy Ducks are in their natural element, swimming buoyantly and diving with ease, and they also have the uncanny ability to sink gently beneath the surface without a proper dive.

In the Slimbridge collection the earliest egg date is 17th April (1964) and the latest hatch is 28th August (1965), the median date for first eggs over 20 years being 19th May (Wildfowl Trust); but little information is available on the timing of the feral breeding season in Britain (Campbell and Ferguson-Lees 1972). Though one very early brood has been reported in April (Leicestershire 1975, following an unusually mild winter), and a number in May and June, it is more usual for small ducklings to appear in July, August or even early September; while a small duckling was seen at Chew Valley on 31st October 1965. Evidently the Ruddy Duck has one of the latest breeding seasons of British waterfowl.

SUBSPECIES

As mentioned at the beginning, the Wildfowl Trust imported its stock from the USA. Thus the British feral population is of the Nearctic subspecies, nominate *jamaicensis*, in which the drakes have conspicuously white cheeks. In the Neotropical races, *andina* and *ferruginea*, there is progressive reduction in the amount of white on the head.

EPILOGUE

The way that the Ruddy Duck has established itself so firmly and within so short a period leads one to assume that it is now a part of the British avifauna for the foreseeable future. It has found acceptable conditions in the west midlands and other western counties, and continues to increase. There is seemingly suitable habitat in Yorkshire, the east midlands, East Anglia and the Home Counties, in the form of lakes, broads, reservoirs, gravel pits and flooded mining subsidence; thus further expansion can be expected.

The ultimate test for a migratory species introduced to another continent is whether it can tolerate the climatic extremes of its new environment. This is particularly relevant, since there are indications that Britain is on the threshold of a cooler climatic phase. However, in its early days here the Ruddy Duck survived one of the coldest winters this century, so there is no reason at present to suppose that this species will fare less well than many native ones as we move into climatic recession.

POSTSCRIPT

During the short spell of cold weather in late January/early February 1976, many small meres and pools in the west midlands froze over for the first time in at least six years. On 8th-9th February no fewer than 221 Ruddy Ducks were counted on the ice-free Staffordshire reservoirs (110 on Belvide and 111 on Blithfield), the highest number ever recorded in the county (D. Smallshire). That same weekend 130 were present in Avon, where a record figure of 154 had been counted on 12th January (*per* R. Prytherch). Together, these data further indicate that there can be little same-season movement between the Staffordshire and Avon winter flocks.

ACKNOWLEDGEMENTS

It is a pleasure to thank past and present Wildfowl Trust staff for their help: S. T. Johnstone (curator until 1973) provided much useful information on the early days of the Ruddy Duck at Slimbridge; while Professor G. V. T. Matthews, Dr Janet Kear and M. A. Ogilvie read an early draft and made many helpful suggestions. Local recorders and observers who provided supplementary records, and to whom I extend my thanks, are: B. King and R. Prytherch (Avon); A. J. Smith (Herefordshire); E. S. Clare, B. R. Dean, G. R. Harrison, J. Lord, J. N. Sears and D. Smallshire (West Midland Bird Club); C. E. Wright (Salop); J.

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SUMMARY

The Ruddy Duck *Oxyura jamaicensis* is an introduced freshwater species which was admitted to the British and Irish list in 1971. This feral population stems from the Wildfowl Trust's Slimbridge collection, through escapes and their progeny; one small, deliberate release proved ineffective. Feral breeding commenced in 1960, and the species has since increased steadily in numbers and range despite a temporary setback caused by the severe winter of 1962/63. Over the period 1965-75 the rate of increase appears to have averaged about 25% per annum. Ruddy Ducks are now nesting in eight or nine counties; in 1975 there were 50 to 60 pairs, and a post-breeding population of 300 to 350 birds. Habitat is described; small meres and pools are mostly deserted in winter, when flocks form on four large reservoirs in Avon and Staffordshire. Some notes on dispersal are also given.

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Most of the data used have been culled from the many county and regional bird reports and bulletins. Items cited in the text are:

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Owls killing and killed by other owls and raptors in Europe

Heimo Mikkola

It is well known that owls (Strigiformes) and diurnal raptors (Falconiformes) sometimes prey on one another, but the records have been scattered through the literature. Arising out of a study of the prey of certain owls, particularly Great Grey, Ural, Eagle and Hawk* in Fenno-Scandia (Mikkola 1970, 1972, etc.), I have checked all the publications available to me on the foods of birds of prey in Europe, as well as certain unpublished sources (e.g. Merikallio archives), and have collated the records of owls as predators or prey of other owls and diurnal raptors. The results are summarised here, but it must be emphasised that the owls are the common denominator and that this paper does not include records of diurnal raptors killing other diurnal raptors; nor does it embrace cannibalism, which is a not uncommon habit of many owls and diurnal birds of prey. I have not attempted any survey of records outside Europe, though a few from North America are mentioned where these seem relevant.

The text deals with the 13 European species of owls in decreasing order of size (maximum total length). There are generally two paragraphs in each case, the first covering the species as predator and the second as victim, but the three smallest owls have not been recorded killing any other bird of prey and so their treatment is confined to one paragraph. The records for each species are totalled in tables 1 and 2. As, however, there are 1,165 records in all (604 of owls killed by raptors, 330 of owls killed by other owls, and 231 of raptors killed by owls), I have had to be highly selective in the text, which should therefore be read throughout in conjunction with the tables. Similarly, the bibliography at the end excludes many owl and raptor food studies which contain no relevant records and, even so, I have not put every reference in the text because too many names there would make it awkward to follow and some would appear under every species.

Finally, many of the records relate to remains found in pellets or at nests. In such cases, of course, there is no absolute certainty that the birds concerned were taken as prey. Many may have been killed during defence of nest sites or as food-competitors and, where raptors which scavenge are involved, a few may even have been found dead. At the same time, some may have been taken unfledged from the nest and others may have been sick or injured.

*Scientific names are used in the body of the text only if the species does not appear in tables 1 or 2

Table 1. Numbers of records of owls killed by other owls and diurnal raptors in Europe

Predators and prey are both listed in decreasing order of size (maximum total length). A dash indicates that the prey is smaller than the predator, but that there is no record of its being killed by the larger species; note that there are also no records of Short-eared, Little, Scops or Pygmy as predators of other owls

OWL AND RAPTOR PREDATORS	OWLS AS PREY														TOTALS
	Eagle Owl <i>Bubo bubo</i>	Great Grey Owl <i>Strix nebulosa</i>	Snowy Owl <i>Nyctea scandiaca</i>	Ural Owl	<i>Strix uralensis</i>	Hawk Owl <i>Surnia ulula</i>	Tawny Owl <i>Strix aluco</i>	Short-eared Owl <i>Asio flammeus</i>	Long-eared Owl <i>Asio otus</i>	Barn Owl <i>Tyto alba</i>	Tengmalm's Owl <i>Aegolius funereus</i>	Little Owl <i>Athene noctua</i>	Scops Owl <i>Otus scops</i>	Pygmy Owl <i>Glaucidium passerinum</i>	
White-tailed Eagle															
<i>Haliaeetus albicilla</i>	1	-	-	-	-	-	-	-	-	-	1	-	-	-	2
Golden Eagle															
<i>Aquila chrysaetos</i>	2	2	-	3	2	1	3	-	-	-	1	-	-	-	14
Eagle Owl															
<i>Bubo bubo</i>		-	4	2	17	62	23	118	5	21	16	6	1		275
Great Grey Owl															
<i>Strix nebulosa</i>			-	-	-	-	-	-	-	1	-	-	-	-	1
Snowy Owl															
<i>Nyctea scandiaca</i>															
Ural Owl							1	-	-	-	-	-	-	-	1
<i>Strix uralensis</i>						1	1	-	1	-	7	-	-	1	11
Red Kite															
<i>Milvus milvus</i>							4	-	3	-	-	-	-	-	7
Rough-legged Buzzard															
<i>Buteo lagopus</i>						1	-	5	1	-	-	1	-	-	8
Goshawk															
<i>Accipiter gentilis</i>															
Black Kite				1	-	92	65	283	7	25	21	-	10		504
<i>Milvus migrans</i>															
Buzzard									3	-	-	-	-	-	3
<i>Buteo buteo</i>															
Pyrrhuloxia							12	-	11	2	-	-	-	-	25
<i>Falco rusticolus</i>															
Peregrine						1	-	1	-	-	1	-	-	1	4
<i>Falco peregrinus</i>															
Hawk Owl						1	4	14	4	-	2	2	-	-	27
<i>Surnia ulula</i>															
Tawny Owl											3	-	-	-	3
<i>Strix aluco</i>															
Eleonora's Falcon									3	-	6	20	-	3	32
<i>Falco eleonorae</i>															
Parasiticide													2	-	2
<i>Accipiter nisus</i>															
Long-eared Owl						1	-	2	-	1	1	-	3		8
<i>Asio otus</i>															
Barn Owl											1	2	-	-	3
<i>Tyto alba</i>															
Tengmalm's Owl												2	-	-	2
<i>Aegolius funereus</i>															
TOTALS	3	2	4	6	23	177	112	429	14	70	65	8	21		934

Table 2. Numbers of records of diurnal raptors killed by owls in Europe

Predators and prey are both listed in decreasing order of size (maximum total length). A dash indicates that the prey is smaller than the predator, but that there is no record of its being killed by the larger species. The Eagle Owl/White-tailed Eagle records appear in brackets because they are not conclusive and because the eagles were well-grown young in the nest; and the Ural Owl because there was no proof that it killed the Honey Buzzard. These records are excluded from the totals which do, however, include four unidentified buzzards *Buteo spp* and one unidentified hawk *Accipiter sp* taken by Eagle Owls

	DIURNAL RAPTORS AS PREY														
OWL PREDATORS	White-tailed Eagle <i>Haliaeetus albicilla</i>	Red Kite <i>Milvus milvus</i>	Rough-legged Buzzard <i>Buteo lagopus</i>	Goshawk <i>Accipiter gentilis</i>	Osprey <i>Pandion haliaetus</i>	Honey Buzzard <i>Pernis apivorus</i>	Black Kite <i>Milvus migrans</i>	Buzzard <i>Buteo buteo</i>	Gyr Falcon <i>Falco rusticolus</i>	Peregrine <i>Falco peregrinus</i>	Sparrowhawk <i>Accipiter nisus</i>	Hobby <i>Falco subbuteo</i>	Kestrel <i>Falco tinnunculus</i>	Merlin <i>Falco columbarius</i>	TOTALS
Eagle Owl <i>Bubo bubo</i>	(2+)	2	10	26	1	5	1	65	1	19	11	2	55	4	207
Snowy Owl <i>Nyctea scandiaca</i>		—	1	—	—	—	—	—	1	—	—	—	—	—	2
Ural Owl <i>Strix uralensis</i>		—	—	—	—	(1)	—	—	—	—	—	—	—	—	
Tawny Owl <i>Strix aluco</i>											9	1	11	1	22
TOTALS		2	11	26	1	5	1	65	2	19	20	3	66	5	231

On the other hand, some may have been killed but not actually eaten. These various possibilities often cannot be distinguished in the records, however, and so for the purpose of this paper such words as 'predator', 'prey', 'food', 'killing' and 'eating' are used indiscriminately.

EAGLE OWL *Bubo bubo*

Food records include 275 owls of 11 species (table 1) and 207 diurnal raptors of at least 13 species (table 2). The Eagle Owl is known to kill the majority of the other birds of prey dealt with in this paper, but easily its most numerous victims are Long-eared Owl (118 records), Tawny Owl (62), Buzzard (65) and Kestrel (55). Then come six species with around 20 records: Short-eared, Tengmalm's, Hawk and Little Owls and, more surprisingly, Goshawk and Peregrine. Birds of prey form as much as 3.5% of the total food of the Eagle Owl and 23.36% of its bird food (e.g. März 1953, Emmett *et al.* 1972). The number of owls and raptors it takes is thus considerably greater than their share of bird populations. It

is well known that this species does not tolerate other birds of prey in its territory (e.g. Höglund 1966, Sulkava 1966); indeed, in some areas of Norway Eagle Owls kill almost all the other birds of prey (Hagen 1952). Also in Norway, they are suspected of even having sometimes taken fairly large young of White-tailed Eagles from their eyries (Willgohs 1961).

On the debit side, only two raptors have been recorded killing this species: in Sweden there are single records of White-tailed and Golden Eagles preying on an Eagle Owl, and in Finland a Golden Eagle has been seen eating one (Merikallio archives).

GREAT GREY OWL *Strix nebulosa*

Despite its large size, the Great Grey Owl is highly tolerant of other birds of prey in its territory and my analysis of pellets of this species in Finland showed a single adult Tengmalm's Owl as the only such victim (Mikkola 1972a). There is a Swedish record of a Great Grey Owl attacking a Rough-legged Buzzard which came into its territory, but the hawk was not even injured (Wahlstedt 1969).

Nor are there many records of Great Grey Owls as prey. Golden Eagles have taken this species at least twice (Sulkava 1966) and in North America a Great Horned Owl *Bubo virginianus* is believed to have killed a Great Grey Owl on one occasion (Oeming 1955). I once saw a female Goshawk fly at a Great Grey Owl which was diving at me, but she saw me and turned away when still a few metres from her intended victim.

SNOWY OWL *Nyctea scandiaca*

Portenko (1972) referred to single records of Snowy Owls killing a Short-eared Owl, a Rough-legged Buzzard and an adult Gyr Falcon in Eurasia, and a Peregrine in North America. From this it would be easy to believe that the species not infrequently takes smaller birds of prey, but I know of no other records. The reason may be that, in general, there are few other birds of prey on the nesting grounds of Snowy Owls: they and Short-eared Owls sometimes overlap in periods of rodent abundance, but the food of Snowy Owls during southward invasions at such times has been little studied. In Shetland a Merlin was the only raptor sometimes seen in the Snowy Owl's nesting area, but this species is too fast to be captured; once this particular bird was even watched hovering over the head of the brooding female Snowy Owl (Tulloch 1968).

Again perhaps because of lack of opportunity, there are only four records of Snowy Owls being eaten by other birds of prey; the predators in all cases have been Eagle Owls. Willgohs (1974) found the remains of one in a pellet in Norway, while in Merikallio's archives it is recorded that an Eagle Owl was seen eating a

freshly killed Snowy Owl in Norway in December and that the stomach of another which was shot in Finnish Lapland contained the remains of two of these birds.

URAL OWL *Strix uralensis*

The Ural Owl seems to present more of a threat to smaller owls than does the Great Grey or the Snowy and the records include eleven owls of five species: at least one immature Hawk Owl in Norway; a Tawny Owl in Czechoslovakia; and an adult Long-eared, seven Tengmalm's and a Pygmy Owl in Finland. Unlike some other owls, this species has been little studied and that may be the reason why no diurnal raptors have certainly been recorded in its food: its size and the large size of some of its other prey animals make it very probable that the Ural Owl sometimes takes the smaller falcons and even buzzards. Indeed, when Ural Owls and Honey Buzzards nested 30 metres apart in Finland, one of the owls was believed to have killed a Honey Buzzard found dead between the nests (Kellomäki 1971).

There are six records of Ural Owls among the food remains of three other species: Golden Eagle, Goshawk and Eagle Owl.

HAWK OWL *Surnia ulula*

Like the Great Grey, the Hawk Owl seems to be tolerant of other birds of prey nesting in its territory (Mikkola 1972b). In fact, there are no records of its killing any owl or raptor in the breeding season, but during winter Hawk Owls have taken Tengmalm's Owls on three occasions in Finland.

On the other hand, there are 22 records of Hawk Owls among the prey of other species and it is clear that the Eagle Owl, responsible in 17 cases, is their main enemy. The only other owl predator involved has been a Ural Owl, but there are also two records of Golden Eagle and one each of Rough-legged Buzzard, Gyr Falcon and Peregrine eating Hawk Owls. This species has a fast, hawk-like flight, which may be the reason why there are few records, compared with other owls of comparable size, of its being killed by diurnal raptors. There is also a Finnish observation of a Hawk Owl fleeing into the shelter of a thick spruce on sighting a Goshawk in its territory (M. Rikkonen *in litt.*).

TAWNY OWL *Strix aluco*

Like the Ural Owl, the Tawny is very aggressive towards smaller birds of prey in its territory and, perhaps because it has been more widely studied, there are records of its eating 32 other owls and 22 diurnal raptors, of four species in each case. The owls have comprised three each of Long-eared and Pygmy, six Tengmalm's

and 20 Little; apart from single records of Hobby and Merlin, all the raptors have been Sparrowhawks (nine) and Kestrels (eleven).

In turn, however, the Tawny Owl frequently falls victim to other birds of prey and there are no fewer than 63 records among the food remains of two other species of owls and 114 records among the prey of six species of raptors. Almost all the owl predators of this species have been Eagle Owls, but there is a single record of a Ural Owl killing and eating a Tawny in Czechoslovakia (Sladek 1962); it is perhaps surprising that there are not more because where Ural and Tawny Owls overlap in range, with resulting competition for food and nest sites, the stronger Ural drives away any Tawny that comes into its territory. Similarly, the diurnal raptor predators of this species are chiefly Goshawks, with no fewer than 92 records, but there are also significant numbers of records involving Buzzards (twelve), Red Kites (four) and Peregrines (four).

SHORT-EARED OWL *Asio flammeus*

So far as I know, there are no records of Short-eared Owls killing or eating any other bird of prey. This is hardly surprising as they feed largely on small mammals and some small birds taken on the ground.

On the other hand, the species has quite commonly been recorded among the food of other owls and raptors, though, as it is a bird of open country, the predators which hunt mainly in woodlands do not take it anywhere near as often as they do the Long-eared. Apart from a single instance of a Snowy Owl, the only known owl predator involved is the Eagle Owl, with 23 records. By far the commonest threat to this species is, however, the Goshawk with no fewer than 65 records and it is also sometimes taken by the Peregrine (14 records), Rough-legged Buzzard, Golden Eagle and Gyr Falcon.

LONG-EARED OWL *Asio otus*

Although the Long-eared Owl kills considerable numbers of small birds, there are only three records of its taking other birds of prey: Little Owl (two) and Tengmalm's (one). The Little Owls were both in England (Glue 1972, Glue and Hammond 1974).

In contrast, it is by far the commonest victim of all and I have been able to find no fewer than 429 records, 122 relating to three other owls and 307 to seven diurnal raptors. The vast majority of these concern two predators: the Eagle Owl with 118 records and the Goshawk with the remarkable total of 283. The only other owls involved, which probably kill this species mainly as a result of territorial competition, are the Tawny and the Ural, but there is a considerable range of diurnal raptors with Peregrine, Red and Black Kites, Buzzard and Rough-legged Buzzard, and even two Sparrowhawks.

BARN OWL *Tyto alba*

Barn Owls feed mainly on rodents and, although they do not infrequently catch small birds, there are only two records of their taking birds of prey, both Little Owls in southern England in 1971 (personal analysis of pellets).

They also figure less as victims than do other medium-sized owls, with Eagle Owls, Goshawks and Buzzards having taken them a total of 14 times. In addition, there is a North American record of a Golden Eagle eating a Barn Owl (Gordon 1955).

TENGMALM'S OWL *Aegolius funereus*

This is the smallest owl recorded feeding on another bird of prey: though not very big itself, there have been two instances of its killing the still smaller Pygmy Owl in its territory (Scherzinger 1970). On the other hand, there is a Finnish record of Tengmalm's and Pygmy Owls nesting peacefully in the same tree (Kellomäki 1970).

The many records at all seasons of a wide range of predators on Tengmalm's include 39 of six other owls and 31 of six diurnal raptors. Goshawk and Eagle Owl emerge as the main threats to this species, with 25 and 21 records respectively, the others being Ural, Tawny, Hawk, Great Grey and Long-eared Owls, and Peregrine, Gyr Falcon, Sparrowhawk, and White-tailed and Golden Eagles.

LITTLE OWL *Athene noctua*

Slightly smaller than Tengmalm's, the Little Owl falls victim about as often and to a similar range of species, with the Goshawk again the most frequent predator, but with the Eagle Owl ousted for second place by the Tawny. I have found 40 records of four owl predators, comprising Tawny (20), Eagle (16), Long-eared and Barn, and 25 records of four diurnal raptors, involving Goshawk (21), Rough-legged Buzzard, Peregrine and Sparrowhawk.

SCOPS OWL *Otus scops*

Unlike other owls, most Scops leave Europe in winter. I have no information to show whether they are eaten by birds of prey in the African savannas, but they are certainly sometimes killed on passage through the Mediterranean by Eleonora's Falcon (two records) and they also feature in the prey lists of Eagle Owl (six).

PYGMY OWL *Glaucidium passerinum*

This tiny owl, easily the smallest bird of prey in Europe, is hardly capable of killing any other species itself, but it is quite frequently a victim. I have found seven records of it in the prey remains of

four other owls, these being Eagle, Ural, Tawny and Tengmalm's; and 14 records in the food of three diurnal raptors, involving Goshawk (ten), Gyr Falcon and Sparrowhawk.

DISCUSSION

From table 1, the Goshawk and Eagle Owl stand out as by far the most important predators of owls, together accounting for 83.4% of the records. The Tawny Owl, Peregrine, Buzzard, Golden Eagle and Ural Owl, in that order, are the only other species with more than ten records of owls in their food. Table 2 does not include the diurnal raptors as predators but, among owls, the dominance of the Eagle Owl over a wide range of raptors and the significance of the Tawny Owl in connection with the smaller species are again borne out. Apart from these two, it can be concluded that most owls do not kill diurnal raptors, though they do occasionally take other owls. One reason for this difference is presumably the degree of overlap in activity patterns: as a broad principle, nocturnal and crepuscular hunters will tend to clash with one another, but less so with diurnal species.

The tables also show, as one would expect, that birds of prey do not generally kill others larger than themselves. Apart from the suspected instances of Eagle Owls taking young White-tailed Eagles from the nest, the two exceptions (Goshawk/Ural Owl and Sparrowhawk/Tawny Owl) are very marginal in that the raptors may have been large females equal in size to their prey. It is possible, however, that as records accumulate there will be occasional instances of smaller species killing larger ones, particularly where the latter are sick or injured.

In any case, where owls are concerned, size is not the most important factor, but rather their life habits. It is significant that the three owls most recorded as predators, Eagle, Tawny and Ural, are all highly territorial sedentary species with a varied diet. They are much more aggressive towards other birds of prey, especially during the breeding season, than are such nomadic species as the Great Grey, Snowy, Hawk and Short-eared, most of which feed largely on small mammals. Nomadic owls tend to concentrate in areas where there is an abundant food supply, thus often nesting close to other birds of prey and even forming loose colonies; the territory seems to consist of only the nest site and its immediate surroundings, so the hunting range may be common to other pairs and other species (Mikkola 1972). In contrast, territorial species guard their home ranges as well and try to prevent other birds of prey from settling in them. In cases of sudden food shortage, nomadic species invade new areas in search of a sufficiency of suitable prey. At such times, starving individuals will attack

competitors for reasons different from those of territorial species, for which the nutritional value of another predator is probably of secondary importance. When a territorial fight ends in the death of the intruder or weaker individual, sometimes only the head of the loser is eaten.

Among the hole-nesting species, a shortage of suitable breeding places may lead to fights which have nothing to do with food. The records summarised in this paper include Ural killing Tawny, Barn/Little and Tengmalm's/Pygmy. It is difficult to think of any reasons for these other than competition for nest sites.

Nevertheless, it seems likely that Eagle Owls, and probably Tawny Owls, as well as Goshawks and some of the other diurnal raptors, do take a proportion of smaller birds of prey simply as food, whether or not they are possible competitors. Hunting owls and raptors, themselves concentrating on finding prey, are bold and careless, with the result that they may fall to bigger birds of prey more often in proportion to their total numbers than do other birds. For example, a conspicuous Buzzard, or a Tawny or Long-eared Owl, may be much easier to find and catch than, say, some gamebirds (Galliformes). Owls are also easily located by their calling in spring and one can imagine that it would not be difficult for an Eagle Owl to clear its territory of, for example, hooting Tawny Owls (62 records) or Long-eared Owls (118).

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SUMMARY

This paper considers the interrelationships of European birds of prey by summarising the published records of owls eating or being eaten by other species of owls and diurnal raptors; it does not take account of raptors killing raptors. It deals with a total of 1,165 records, comprising 934 of 13 species of owls killed by nine other owls and eleven raptors (table 1) and 231 of 13 or more species of raptors killed by three or four owls (table 2).

Two species stand out as significant predators of owls, together accounting for 83.4% of the records: these are the Goshawk *Accipiter gentilis*, with 504 records involving eight species, and the Eagle Owl *Bubo bubo*, with 275 records involving twelve species. The only other birds of prey with more than ten records of owls in their food are the Tawny Owl *Strix aluco* (32), Peregrine *Falco peregrinus* (27), Buzzard *Buteo buteo* (25), Golden Eagle *Aquila chrysaetos* (14) and Ural Owl *Strix uralensis* (11). The Eagle Owl is also much the most regular owl predator of raptors, with 209 records of at least 13 species, followed again by the Tawny Owl, with 22 records of four small species.

Certain species are also prominent in the lists of prey. By far the most frequently eaten owl is the Long-eared *Asio otus*, with 429 records mostly falling to Goshawk

and Eagle Owl but also to eight other species. Other common owl victims are Tawny (177), Short-eared *Asio flammeus* (112), Tengmalm's *Aegolius funereus* (70), Little *Athene noctua* (65), Hawk *Surnia ulula* (23) and Pygmy *Glaucidium passerinum* (21). The diurnal raptors most frequently taken by owls are Kestrel *Falco tinnunculus* (66), Buzzard (65), Goshawk (26, all to Eagle Owl), Sparrowhawk *Accipiter nisus* (20) and Peregrine (19, again all to Eagle Owl). In general, as one would expect, owls and diurnal raptors do not kill other birds of prey larger than themselves.

Although it seems likely that Eagle Owls, and probably Tawny Owls, as well as Goshawks and some of the other diurnal raptors, do take a proportion of smaller birds of prey simply as food, it is probable that most records of interspecific killing among owls result from competition for territory, food or breeding sites. Highly territorial and sedentary owls with varied diets, such as the Eagle, Tawny and Ural, are much more aggressive towards other birds of prey, especially during the breeding season, than such nomadic species as the Great Grey *Strix nebulosa*, Snowy *Nyctea scandiaca*, Hawk and Short-eared which feed mainly on small mammals. Among the hole-nesting owls, a shortage of suitable sites sometimes leads to fights in which the weaker individual may be killed and partly eaten, but such cases have little to do with food. Hunting owls and raptors are bolder and more careless than other prey animals and, perhaps for this reason, fall to bigger birds of prey more frequently in proportion to their total numbers than do other birds.

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Waders, water and mud

Photographs by J. B. and S. Bottomley

Plates 13-16

We have received a superb collection of black-and-white photographs of waders washing, walking, running, feeding and flying, taken by Brian and Sheila Bottomley, mostly in Cornwall. Eight are reproduced here and we hope in due course to publish further selections.

Quite outstanding is the Greenshank *Tringa nebularia* wading in shallows and looking for food (plate 13a): every detail of the plumage is shown (except for the white back and rump, which are hidden) and the exact shape of the upturned bill can clearly be seen, while the delicate ripples on the water help to make the picture. The Grey Plover *Pluvialis squatarola* (plate 13b) and the Knot *Calidris canutus* (plate 15a) are two other close-ups which capture the characters of the species concerned and yet at the same time show every feather. Although it is not quite so close, the pose of the Black-tailed Godwit *Limosa limosa* (plate 16a) is very typical and, as in the case of the Knot, a delicate touch is provided by the drop of water at the tip of the bill.

More evocative, however, are the two shots on plate 14. When a Sanderling *C. alba* runs along the shore, its legs move so quickly that it seems almost to be on wheels, but here (plate 14a) the camera has frozen the action and leaves one with the impression of a small wader with a big stride. No less pleasing is the beautiful study of the bathing Dunlin *C. alpina* splashing an arc of water over itself (plate 14b). The centre spread of *Calidris* waders is completed by the small, neat, short-billed Little Stint *C. minuta*, with the light lines of immature plumage on its back (plate 15b).

Finally, the wader with its bill buried in the mud almost to the hilt (plate 16b) makes a good puzzle picture. When one looks at the plumage it is clearly a Curlew *Numenius arquata*, but at first sight one thinks of a much shorter-billed species, perhaps a Stone Curlew *Burhinus oedipnemos*, or the eye projects a straight or upturned bill, rather than a markedly decurved one, and conjures the thought of a peculiar Bar-tailed Godwit *L. lapponica*.

I. J. FERGUSON-LEES

Notes

A further note on the wing-spreading of Black Storks In a recent note (*Brit. Birds*, 67: 236-237) M. D. England gave details of an unusual aspect of the feeding behaviour of some Black Storks *Ciconia nigra* in north-east Portugal. He described how the birds shaded the water in which they were fishing by raising and spreading the wings, bringing them forward of the normal flying position, bowed and inbent. I recorded similar behaviour in a Black Stork which I watched on the banks of the Danube near Apatin, Yugoslavia, in July 1974. The bird was fishing in shallow water and always adopted the same technique. It made a fast run of a few steps then stood still and spread the wings forward until they made a complete canopy over the head, the tips being near, or even dipping into, the water. The position was exactly that which has been observed in the Black Egret *Egretta ardesiaca*, the 'umbrella' being much more complete than that described by England.

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House Martins roosting in reed beds The letter by W. Harms (*Brit. Birds*, 67: 518-519) relating to the paucity of records of House Martins *Delichon urbica* roosting in reed beds prompts me to record the following observation.

In mid-afternoon on 1st August 1974, in the Meuse valley near Visé, Liège, Belgium, I saw about 120 Sand Martins *Riparia riparia* settling to roost in vegetation resembling a reed bed, situated in the middle of a dead arm of the river. When, on occasion, the flock was disturbed by fishermen it temporarily took to the air and one or two House Martins, which seemed less sensitive to the disturbance, could be seen remaining in the roost. I do not know, however, whether the House Martins actually stayed in the roost with the Sand Martins throughout the night.

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News and comment *Peter Conder*

Endangered Species (Import and Export) Bill The Government has now produced its Endangered Species (Import and Export) Bill, which provides the specific powers to implement the Convention on International Trade in En-

dangered Species of Wild Fauna and Flora in Britain and some dependent territories. The convention will come into force in the United Kingdom in accordance with its provisions after the deposit of the instrument of ratification. The convention was implemented, as recorded earlier (*Brit. Birds*, 69: 68), on 1st January 1976 in the United Kingdom under existing powers as an interim measure, pending the passage of this bill.

The bill was given its second reading in the House of Lords on 26th February 1976. It covers only some of the provisions of the convention, chiefly the listing of endangered species, the control measures and the methods of obtaining licences. The maximum fine for offences against the Act will be £400. Even this sum may not be a sufficient deterrent against attempts to smuggle some species into this country. A major omission is the failure to restrict the import and export to a limited number of named ports of entry, and the establishment at such ports of a staff competent to identify and care for animals. Nevertheless, in view of the shortage of time before the next important stage in the progress of this convention, this is perhaps the best that can be done.

There is now some urgency for the Government to deposit the instrument of ratification in time to qualify to take its place as one of the 'parties' to the convention, at the first meeting of which, in November 1976, it will be possible to amend the schedules and influence future progress.

Hong Kong trade in wildlife A paper by Michael Webster, of The Conservancy Association of Hong Kong, has just appeared in *Biological Conservation* (8:203-211) which assesses the volume of trade in wild birds in Hong Kong, where large numbers of wild birds, reptiles and amphibians are imported from China. Webster reports that reliable figures were hard to obtain, and he therefore decided to concentrate on the trade in birds of prey. A conservative estimate of the number of birds of prey, including owls, imported annually was 10,000. The list involves several species in the schedules of the convention on trade in endangered species, such as Golden Eagle, Imperial Eagle, White-tailed Eagle, Black Vulture and Peregrine. The most numerous species imported is the Buzzard, at over 1,000 a year. Whilst the possession of any bird or mammal captured in Hong Kong is illegal, the same species may be imported from China unless it is on Schedule One of the convention. These regulations came into force on 1st January 1974 but Mr Webster states that it is not possible to see any beneficial effects from them. Furthermore, laws covering the trade are too vague to permit strict enforcement.

Mr Webster concludes by saying that the trade in birds and mammals could be doing a great deal of damage to the ecological system of China and may, since many species are migratory, affect regions far from China. Birds of prey, he states, are endangered by the trade. It is a trade which is not permitted in Britain yet which is defended, so he claims, by British officials in a British colony.

European Wetlands Year 1976 A UK co-ordinating committee has been established by the Nature Conservancy Council representing the organisations for which the conservation of wetlands is of prime importance and which are taking action to ensure that our threatened wetlands are safeguarded. The campaign was launched by R. E. Boote CVO, Director of the Nature Conservancy Council, at the Royal Society for the Protection of Birds' film premiere at the Royal Festival Hall. Two of the films had a wetlands theme: the threats to the Wash and the story of a Heron. A campaign bulletin is being issued regularly by the Librarian, The Nature Conservancy Council, 19/20 Belgrave Square, London SW1X 8PY, and single copies are available free of charge. The Council for Europe has produced a wetlands poster designed by Fulco Pratesi, an Italian artist, whose work has appeared on the front cover of *Birds* magazine. Details of the poster and other publications are given in the first issue of the Bulletin.

J. Paul Getty prize for conservation Dr Sálím Ali, the well-known Indian ornithologist, has been awarded the 50,000-dollar J. Paul Getty Wildlife Conservation prize. The decision was made by a jury chaired by Prince Bernhard of the Netherlands, President of the World Wildlife Fund. At 79 Dr Sálím Ali is still very active. He is co-author with Dr Dillon Ripley of the ten-volume *Handbook of the Birds of India and Pakistan*. He still travels widely.

California Condors Only 29 California Condors were spotted by the 80 observers taking part in the ninth annual Condor survey in the mountains of southern California. From this the Condor recovery team, which consists of representatives of the US Fish and Wildlife Service, US Forest Service, California Department of Fish and Game, US Bureau of Land Management and the National Audubon Society, extrapolates a total of 'about 50' and believes that the population is gradually declining. One good sign, according to John Borneman, the National Audubon Society Condor naturalist, is the relatively large number of immature birds, five, seen this year. But he also fears that the birds may be adversely affected by activity at two oil drilling sites south of the Sespe Condor Sanctuary.

Lyndhurst Bypass decision The Department of the Environment has refused the Hampshire County Council permission to build a bypass round Lyndhurst through the heart of the New Forest, which would have destroyed a swathe of magnificent unenclosed woodland as well as sections of the Forestry Commission's Inclosures areas of heathland and alder carr. This decision follows a public enquiry at Lyndhurst in December and January 1974/75 at which the Nature Conservancy Council, the RSPB and the Hampshire and Isle of Wight Naturalists' Trust made a joint case against the proposal. However, other routes have been canvassed, all of which involve some destruction of the Forest, and the Hampshire County Council may well come back with other plans.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

November and December reports *D. A. Christie*

GREBES TO WILDFOWL

We received a report of a **Pied-billed Grebe** *Podilymbus podiceps* which arrived at Carlingwark Loch, Castle Douglas (Dumfries & Galloway), in November and was still present in January, though unfortunately no further details are available. Three **Manx Shearwaters** *Puffinus puffinus* were reported, one flying north off Hartlepool (Cleveland) on 17th November and two west at Botany Bay (Kent) on 13th December. An unidentified **petrel** was noted off Spurn (Humberside) on 8th November.

In November two **Purple Herons** *Ardea purpurea* were located, both in Norfolk, at Salhouse on 4th and at Wells on 8th. An immature **Spoonbill** *Platalea leucorodia* was at Loch Fleet (Highland) on 30th December, staying through January. On 5th November a **Glossy Ibis** *Plegadis falcinellus* was identified at Saltfleetby (Lincolnshire), and on 14th December one was reported at Stodmarsh (Kent). There were continuing reports of **Shags** *Phalacrocorax aristotelis* inland, particularly in the Middle Thames Valley area, while two were at Sevenoaks (Kent) on several dates in December.

A drake **Green-winged Teal** *Anas crecca carolinensis* was at Unifirth (Shetland) on 15th November, and an **American Wigeon** *A. americana* first found at Kenfig

Pool (South Glamorgan) on 19th October remained at that site until 2nd November. **Surf Scoters** *Melanitta perspicillata* were still present in Scotland: at St Andrews (Fife) one was identified on 14th and 15th December and another found on 18th stayed into January. **King Eiders** *Somateria spectabilis* were also present in the same part of Britain, particularly in the Loch Fleet area, and one also turned up at Fair Isle (Shetland) on 4th November. An unusual report concerned a flock of 30 **Eiders** *S. mollissima* at Ogston Reservoir (Derbyshire) on 23rd November, which finally departed to the south-west in two groups of 13 and 17. A **Lesser White-fronted Goose** *Anser erythropus* came to Slimbridge (Gloucestershire) on 28th December and remained throughout January and after; while the **Red-breasted Goose** *Branta ruficollis* mentioned in a previous summary (*Brit. Birds*, 69: 71) stayed in the Langstone Harbour area of Hampshire through December and January.

RAPTORS TO AUKS

After the two previous years numbers of **Rough-legged Buzzards** *Buteo lagopus* were very low, the only report received being of one at Hinton (Suffolk) on 14th December. A **Goshawk** *Accipiter gentilis* was also reported from Suffolk, at Bricks on 21st December, while the only **Red Kite** *Milvus milvus* was one near Chewton Mendip (Somerset) flying towards Chew Valley Lake (Avon) on 2nd November. A **Little Crake** *Porzana parva* was at Lodmoor (Dorset) from 8th to 10th November, and we heard that it was seen again on 8th December.

As in the previous two winters (*Brit. Birds*, 67: 220; 68: 219, 254) a **Kentish Plover** *Charadrius alexandrinus* wintered on the North Wirral peninsula (Cheshire), this time from 2nd November. Of at least equal interest was a **Lesser Golden Plover** *Pluvialis dominica* in the area of Caerlaverock Castle (Dumfries & Galloway) from 23rd November onwards. A **dowitcher** *Limnodromus* sp was reported at Bowness (Cumbria) on 7th December. **Whimbrels** *Numenius phaeopus* were still being sighted in November, one at the Calf of Man on 5th and another two on 10th, and in Kent nine at Sandwich Bay on 7th with three on 8th and four flying south-west at Langley, also on 8th. A **Lesser Yellowlegs** *Tringa flavipes* was at Crossens marsh (Merseyside) from about mid-November to 27th, while one was in the Teign estuary (Devon) through November until at least February. A **White-rumped Sandpiper** *Calidris fuscicollis* was found at Bridgend, Islay (Strathclyde), on 20th November; and **Pectoral Sandpipers** *C. melanotos*, comparatively scarce during the autumn, were at Teesmouth (Cleveland) from 1st November and at Southport (Merseyside) on 30th, and again at Teesmouth on 25th December. **Curlew Sandpipers** *C. ferruginea* were reported from four sites in November, including inland birds at Eye Brook Reservoir (Leicestershire) on 2nd (three), 3rd and 8th, and in December one with an injured leg remained at Staines Reservoir (Surrey) from 6th into the New Year. A **Grey Phalarope** *Phalaropus fulicarius* was at St Mary's (Northumberland) from 6th to 8th December and another at Martin Mere (Lancashire) on 27th and 28th.

Several November reports of skuas were not mentioned in the autumn summary (*Brit. Birds*, 69: 112-116): these included **Great Skuas** *Stercorarius skua* at Hauxley (Northumberland) on 9th (flying north), at Hartlepool on 8th (north) and 17th (six, all north), and off Sunderland (Tyne & Wear) on 26th; a **Pomarine** *S. pomarinus* flying north at Hauxley on 9th, and one north and one south at Hartlepool on 17th; and **Arctics** *S. parasiticus* at Seaton Sluice (Northumberland) on 9th (north) and 16th (south), and at Hartlepool on 17th (seven south). In December at Seaton Sluice an **Arctic** flew north on 2nd and a **Great** on 30th. A **Ring-billed Gull** *Larus delawarensis* returned to the usual locality at Blackpill (West Glamorgan) on 17th November. Further **Sabine's Gulls** *L. sabini* were reported in November, at Hartlepool on 17th (flying north) and at North Foreland (Kent), where singles were seen on 9th, 17th and 24th. A **Common Tern**

Sterna hirundo was at Chew Valley Lake on 3rd November, while singles of either Common or **Arctic Tern** *S. paradisaea* were recorded off North Gare (Cleveland) on 16th (flying south) and off Hartlepool on the next day (north). Late **Sandwich Terns** *S. sandvicensis* flew north off Seaton Sluice on 22nd November and at Brcan Down (Somerset) on 24th. A strange report was received of a **Puffin** *Fratercula arctica*, standing near the Stoke Ferry Inn beside the River Trent in Nottinghamshire on 4th December.

NEAR-PASSERINES

The large numbers of **Long-eared Owls** *Asio otus* mentioned previously (*Brit. Birds*, 69: 114) will be treated in a later summary when a fuller picture is available. Although there were few **Hoopoes** *Upupa epops* during the autumn, November produced three records: on Fair Isle on 4th, in Durham city on 20th, and at Holkham (Norfolk) on 22nd.

PASSERINES

A **Swallow** *Hirundo rustica* was in Osterley Park (Greater London) on 3rd December, the only one reported during that month. Omitted from the autumn summary was a report of an unprecedented 'fall' of 110 **Magpies** *Pica pica* on the Calf of Man on 7th November. A **Dusky Thrush** *Turdus naumanni* was at Firth (Shetland) from 7th to 13th November, the first since 1968 if accepted. The only late **Wheatear** *Oenanthe oenanthe* reported in December was one at Purston (Northamptonshire) on 7th. A belated report was of a **Bluethroat** *Luscinia svecica* on the Calf of Man on 14th November, an immature female trapped which is the first ever record of the species for the Isle of Man. There was also a report of an **American Robin** *T. migratorius* in the Netley/Hamble area of Hampshire on 2nd December.

Yet more **Cetti's Warblers** *Cettia cetti* were reported, at Dungeness Bird Reserve (Kent) from 4th to 6th November and in north Salop from 14th to 27th December. Omitted from previous reports but of particular interest as a rarity was a **Blyth's Reed Warbler** *Acrocephalus dumetorum* at Filey Brigg (North Yorkshire) on 30th August. In addition, another sighting of great interest after the remarkable autumn influx of vagrants was that of a **Desert Warbler** *Sylvia nana* at Frinton-on-Sea (Essex) on 20th and 21st November, the second of the year. Wandering **Dartford Warblers** *S. undata* were found far from breeding localities, in Kent at Dungeness on 10th November and at Ham Street on 12th. A **Yellow-browed Warbler** *Phylloscopus inornatus* arrived on Fair Isle on 10th November. Single **Richard's Pipits** *Anthus novaeseelandiae* occurred on Lundy (Devon) on 3rd November, at Lodmoor on 11th and on Fair Isle on 11th and 12th. A belated report of **Yellow Wagtail** *Motacilla flava* referred to a bird at Fritchley (Derbyshire) on 21st November.

Serins *Serinus serinus* were reported in November on St Agnes (Scilly) on 2nd and on Lundy on 3rd, and in December at Portland (Dorset) on 4th and on St Mary's (Scilly) on 19th (two). Fair Isle's fourth **Rustic Bunting** *Emberiza rustica* of the year arrived on 9th November, a male, and the same island held a **Little Bunting** *E. pusilla* from 11th to 19th of the same month; another Little Bunting was reported, trapped at Dingwall in the Cromarty Firth (Highland) in November. Further **Lapland Buntings** *Calcarius lapponicus* in November were recorded at Marton Mere, Blackpool (Lancashire), on 7th and, unusually, inland at Cheddar Reservoir (Somerset) on 20th.

ERRATUM: The Red-eyed Vireo *Vireo olivaceus* reported in the September and October reports (*Brit. Birds*, 69: 73) was in fact at Aberdaron (Gwynedd) on 25th and 26th September, and not on Bardsey on 26th and 27th as stated; we are grateful to R. S. Thomas for pointing out this error to us.

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British Birds

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Viewpoint *Colin Tubbs*

Colin Tubbs is an Assistant Regional Officer for the Nature Conservancy Council and author of 'The New Forest—an ecological history' (1969) and 'The Buzzard' (1974). His research interests include interpretation of the structure of woodland and other lowland habitats in historical terms, wader feeding ecology and various bird population studies. The views he expresses here are personal and not necessarily those of the NCC.

A price for conservation?

The nature reserve has been a cornerstone of nature conservationists' response to the increasing 20th-century pressures for alternative, more intensive or more destructive land uses for the places to which he attaches a special value. However much planning policies can be influenced there is no substitute for the direct control, and preferably the ownership, of the land. Despite thin purses and a relatively small input from central and local government, conservation organisations in the United Kingdom have enjoyed a fair measure of success in establishing nature reserves in key areas, and also in influencing land planning policies and the management practices of large public landowners such as the Forestry Commission and The National Trust.

If reserves have been one cornerstone of conservation, education has been another, and inevitably nature reserves have served increasingly as outdoor exhibitions of nature; natural arenas for public initiation into the intricate relationships of plants and animals, whose study forms the underlying discipline of conservation; and (hopefully) conservation success stories with which to woo the

subscriber, the voter and the planner—and perhaps sometimes the sinful developer. At the same time many conservation organisations have believed that those who pay their subscriptions or support them through rates and taxes should so far as possible be able to enjoy the nature in the nature reserves they pay for. Various techniques have been developed for deploying people in reserves with the least adverse effect. The nature trail remains a hot favourite as a means of imparting information whilst channelling people along a predetermined path chosen to avoid sensitive places. The use of covered approaches and hides on wetland reserves has permitted large numbers of people to see wildfowl and waders at close quarters without disturbance. On some reserves (inevitably Minsmere, Suffolk, springs to mind) a network of such facilities has been linked with the excavation of new wetland habitats. A further, and arguably less justifiable, development has been the artificial feeding of wildfowl to attract them on to prepared and protected wetlands which can be viewed from incongruously comfortable facilities, which one hesitates to call hides.

The phenomenon of the nature trail is not confined to the nature reserve. It occurs today, sometimes in the guise of the forest walk or country trail, wherever land managers believe or are instructed that they should encourage a degree of public access, educate the public about the countryside and its management—but discourage them from roaming too widely, lest they destroy the features which attracted them in the first place. The British Tourist Authority, which evidently sees trails as tourist attractions, publishes annually a guide to nature trails in Britain. In 1968 this covered 101 trails; in 1974, 410. These lists are far from comprehensive but indicate the scale on which trails are developing.

Nature trails and other management devices for the painless enjoyment of nature are unquestionably popular with the public. Many trails are overloaded and are suffering physical damage from too many feet. Some reserves (particularly those equipped with hides, interpretative centres and impressive displays of wetland birds) are populated to capacity, and sometimes beyond capacity if the limit of possible control over crowd behaviour is accepted as a criterion. Demand leads supply. The nature trail tail sometimes practically wags the nature reserve dog. The suitability of a site for trails and other 'educational' facilities has become almost a standard justification in any fully persuasive case for a reserve. Before the supply and demand spiral is permitted to gather further momentum it is prudent to review what the hide, the trail and the interpretative centre have achieved, and at what cost. It is valuable first to rehearse their objectives, which seem to be threefold: to further an understanding of the countryside and of conservation; to provide an

entertainment; and to provide a means of doing both without excessive damage or disturbance. Unfortunately there are inadequate survey data on which to demonstrate whether these objectives are being achieved—a gap which needs plugging—but it seems clear enough that people in large numbers enjoy the facilities whatever and wherever they are: they come in droves. Moreover, even in highly sensitive areas they can be accommodated successfully provided the level of investment in facilities and wardening is high enough. It is less easy to decide whether most really learn much. My experience suggests that many exhibit a general sympathy for wildlife and its conservation (but do the facilities not tend to attract the already partly converted?), but the level of understanding is too often superficial and too often weighted in favour of misleading generalisations. More worrying, perhaps, is a discernible tendency towards an underlying assumption that nature is found only on nature trails and in nature reserves. This may be partly because spoon-feeding induces idleness and partly because trails and posters and views of ducks and waders from hides seldom in themselves embody urgent questions or demand a sharpening of the physical senses. To some extent these are deficiencies in technique, but they are fundamentally deficiencies in concept. Seeing nature in comfort inevitably induces a comfortable view of nature in which its realities and the real conflicts of conservation are evaded.

And what of the costs? The greatest payment is intangible, but nonetheless valid—loss of wilderness. Only seldom is the furniture of countryside interpretation introduced into the countryside (and especially on to relatively small nature reserves) without damaging the subtle illusion of wilderness. A second payment is also in kind and is paid by those who find that where they once watched birds alone they now need to join the organised tours leaving the reserve centre four times a day for an hour a time. This is an extreme, but the restrictions on those who originally valued the wild places most, and who often turn out to be those who clamoured and fought for their protection as reserves, can be galling and their sacrifice demands more recognition than it often receives from professional conservationists. The loner is seldom catered for, much less encouraged.

What conclusions can I draw? Clearly, research is needed into the educational effectiveness of the techniques employed. To prejudge results I suspect there are better dividends in the enshrinement of ecology and conservation as critical elements of school curricula than in the countryside education techniques which have become fashionable. Meanwhile, perhaps this review embodies a few pointers to some modifications in approach which might be explored. If, however, my view about the effectiveness of these

techniques is correct I am bound to ask if it is justifiable to create a circus from the wilderness. I think not. This is not to say that I doubt the desirability of permitting access to reserves and other areas acquired or managed ultimately from the public's purse; but there is also a case for controlling numbers and a case, too, for catering for those who reject the limitations of the organised tour. Nor is it to deny the case for wildlife entertainment, but there are places to embark on such enterprises without invading the limited resource of wild and biologically rich habitats. You do not need to build bungalows to create suburbia from the countryside.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

Breeding biology of Sanderlings in north-east Greenland

M. W. Pienkowski and G. H. Green

Plates 17-20

INTRODUCTION

In the first detailed account of breeding Sanderlings *Calidris alba*, Manniche (1910) reported that only females incubated and attended the chicks. Other observers did not always agree, because both males and females were shot at the nest and one or two adults found attending chicks (table 1). The confusion was apparently resolved by Parmelee (1970) who, in a report of a three-year study on Bathurst Island (75° 48' N, 98° 25' W) in arctic Canada, showed that at least some nests and broods were attended by only one of the parents, either the male or the female. His findings were based on a continuous watch of 14 days at one nest, one to 30 visits to nine other nests and eight observations of adults with family parties. He also shot two Sanderlings near the start of incubation and subsequent histological examination of their ovaries showed, in one case, clear evidence of rapid successive ovulation of two clutches (eight ruptured follicles) with a third developing; and, in the other, eight post-ovulatory follicles structurally suggesting that two clutches had been laid in quick succession (Parmelee and Payne 1973).

From these and other observations, Parmelee and Payne inferred that Bathurst Island Sanderlings laid two clutches in quick succession and that each was reared independently by one of the parents. Furthermore, they suggested that breeding effort could be modified in response to annual differences in spring snow cover and other weather conditions by variation of the number of clutches laid by one female in a season. Their conclusions were based on indirect, but strong evidence; they did not prove their hypothesis (as far as we know) by observation of marked individuals. These findings have often been quoted with the implication that Bathurst Island breeding strategy is typical of all Sanderling populations. In 1974, however, a Joint Biological Expedition to north-east Greenland (fig. 1), which included ourselves, made observations on breeding Sanderlings and found both adults sharing incubation at one nest, both in attendance at four other nests and both present with 13 of the 25 family parties observed.

When we arrived at the Danish air station of Mestersvig (72° 14' N, 23° 55' W) on 25th June 1974, we were informed by the station staff that the snow melt was about three weeks later than

Table 1. Nest and brood attendance by Sanderlings *Calidris alba* as reported in the literature

Each entry is categorised as present (+), absent (—) or unrecorded (?)

Author	Locality	NEST		BROOD	
		Female	Male	Female	Male
Feilden (1877)	Canada	?	+	?	?
Walter, H. (1902) quoted by Dresser (1904)	Siberia	+	+	?	+
Koltoff (1903)	Greenland	?	?	+	+
Birula, A. B. (1907) quoted by Pleske (1928)	Siberia	+	+	?	+
Manniche (1910)	Greenland	+	—	+	—
Madsen (1925)	Greenland	?	+	?	?
Pleske (1928)	Siberia	?	?	+	+
Pedcrsen (1930, 1934, 1942)	Greenland	+	—	+	+
Løppenthin (1932)	Greenland	?	?	+	+
Bertram <i>et al.</i> (1934)	Greenland	?	?	+	+
Bird and Bird (1941)	Greenland	+	? late in incubation	+	+
Manning <i>et al.</i> (1956)	Canada	?	?	?	+
Parmelee and MacDonald (1960)	Canada	+	or + One deserts	+	or + One deserts
Parmelee <i>et al.</i> (1967)	Canada	+	— (22-hour watch at one nest)	?	?
Rosenberg <i>et al.</i> (1970)	Greenland	Both around, but sitter not sexed		+	+
Parmelee (1970)	Canada	+	or + One alone	+	or + One alone
Parmelee and Payne (1973)	Canada	+	+	+	+
		Separate nests		Separate broods	

average. There was, however, great local variation in the melt and, on that same day, we saw from the air that Ørsted Dal ($71^{\circ} 47' \text{ N}$, $23^{\circ} 15' \text{ W}$, 56 km SSE of Mestersvig) was nearly free of snow. Later observations on the ground suggested that the season at Ørsted Dal and at Karupelv on Traill Ø ($72^{\circ} 31' \text{ N}$, $23^{\circ} 55' \text{ W}$, 33 km N of Mestersvig) was about three weeks ahead of that at Mestersvig and in the valleys leading to Antarcitics Havn ($72^{\circ} 00' \text{ N}$, $23^{\circ} 06' \text{ W}$, 38 km SE of Mestersvig). The situation at Henrick Møller Dal ($71^{\circ} 53' \text{ N}$, $22^{\circ} 58' \text{ W}$, 54 km SE of Mestersvig) appeared to be intermediate. Observations on Sanderlings were made at all five places. The effect of the differing snow conditions on breeding waders will be discussed by Green and Lloyd (in preparation).

OBSERVATIONS AT MESTERSVIG

During the last days of June there were more patches of wet ground, exposed by bulldozers, at Mestersvig than in the surrounding area. Sanderlings commonly fed on these, eating the dipterous larvae abundant in melt water pools. Song flights and displays by single birds and pairs were observed, and sometimes three or four displayed together. Six were caught and marked with colour rings and plumage dye so that individuals could subsequently be identified in the field. After 2nd July, however, only one marked pair was seen again and on that day another marked individual, paired with an unmarked mate, was found about 3 km away. Thus, the Mestersvig area was probably a feeding place for newly arrived Sanderlings, where some paired but few remained to breed. Our observations on early season feeding, pairing and display conform with those of Manniche (1910), Pedersen (1930) and Parmelee (1970).

One of the marked pair which remained in the area, thought by plumage to be the male, had been caught on 28th June. On the following day it was seen feeding and displaying with a presumed female, which was then also caught and marked. This pair was seen feeding, always together, on many occasions from 29th June to

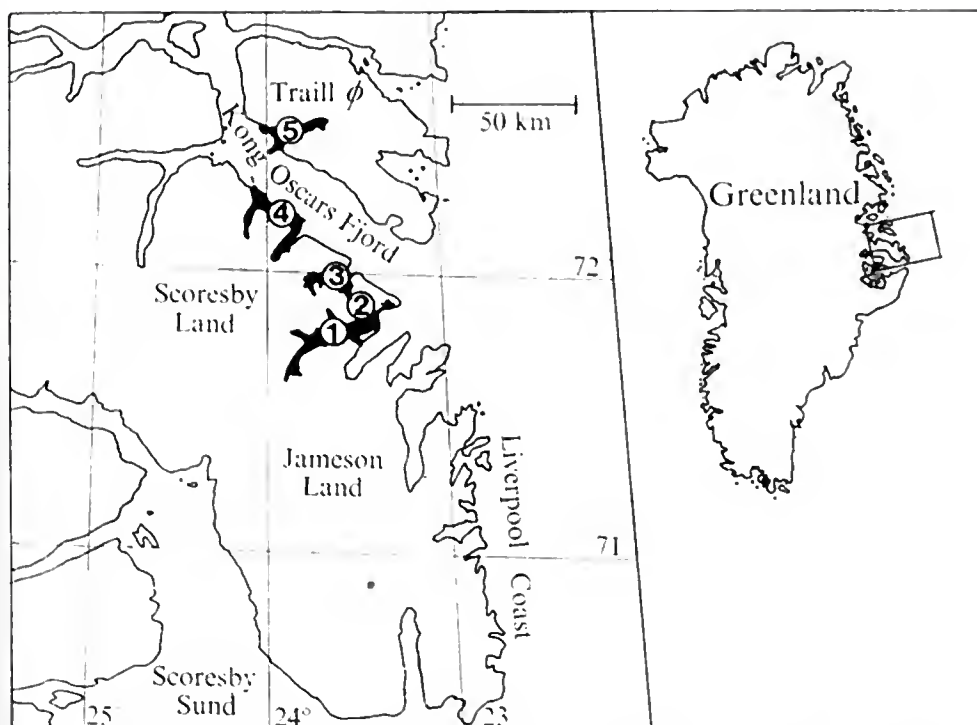


Fig. 1. Region of Kong Osears Fjord, with inset showing its position on the coast of north-east Greenland. The five study areas of 1974 are delineated by the 200-metre contour and are (1) Ørsted Dal, (2) Henrick Møller Dal, (3) Antarctica Havn, (4) Mestersvig and (5) Karupelv.

4th July. About that time display flights and, indeed, all sightings of other Sanderlings in the area virtually ceased. The marked pair was next seen on 9th July, when the female was feeding alone at 19.30 hours and with her mate at 23.30. (Times are given as GMT, which is used locally, with solar midnight at about 01.30.) At 12.45 on 10th July the female was feeding at the same site; and at 22.30 on the 12th the male was found incubating four eggs about 200 metres away. The nest was situated in a dry area of moss and dwarf willow about 40 metres from a stream, and was thickly lined with willow leaves. The female was incubating at 11.00 and 13.30 the next day.

A continuous 24-hour watch was begun at 04.00 on 14th July: during this time, the male incubated for a total of 12 hours 10 minutes (00.40-03.19, 11.57-16.25 and 19.37-00.40) and the female for 11 hours 38 minutes (03.22-11.55 and 16.30-19.35), change-overs taking up the remaining 12 minutes. Within the incubation periods, the male was absent from the nest for nine periods totalling 25 minutes (of which four, totalling nine minutes, were due to human disturbance) and the female for four periods totalling 21 minutes. The mean time off the nest, including change-overs, was 3.4 minutes (range usually 2-5 minutes, but one absence of 12 minutes by the female) and the total proportion of the day when the eggs were not covered was only 4%. In comparison, at the nest watched by Parmelee on Bathurst Island for 14 days, the male alone incubated, the mean number of his absences per day was 26 (range 4-45), lasting a mean 10.2 minutes (range in daily means 4.4-94.8 minutes), and the eggs were not covered for 19% of the time (daily range 11-33%).

Occasional visits to the nest over the next eleven days showed that both male and female were still incubating, but they were never observed together. This situation was confirmed by a series of frequent visits during the 24 hours from 12.00 on 26th July: the female was incubating at 12.11-16.30 and 17.45-20.15; and the male at 21.20-21.47, 23.15, 01.00-03.30, 10.15-10.45 and 11.58-12.30 (the bird concerned was on the nest throughout each observation period).

The incubating Sanderlings usually sat with head and neck upright, flattening out on the nest when a potential predator approached. They were often motionless for long periods and on several occasions did not move for about two hours. They appeared to sleep less than the male watched by Parmelee and also moved less when awake. For example, on 14th July the bill was tucked under the scapulars for a total of only one hour out of the 24, the longest period being about ten minutes; Parmelee noted that his male 'was quietest during the coolest hours and at such times

usually appeared to sleep soundly, its head turned and bill tucked beneath the scapulars'. The off-duty bird at Mestersvig usually fed alone 200-600 metres from the nest in wet areas, such as on damp tundra or by streams, lake edges and sandy sea-shores. Twice in late July one fed in a flock of about ten migrant Sanderlings. Prey during the latter half of the incubation period appeared to be small adult flies (Diptera), which were abundant in the area.

All the four eggs were found to be starved at 17.50 on 27th July and they hatched between 13.05 and 14.25 on the 30th; both adults incubated until at least the 28th and probably later. At 06.30 on 31st July the chicks were still in the scrape, but neither they nor the adults were seen near the nest again, despite careful searches. Heavy rain fell throughout 30th and 31st July and we have little doubt that the chicks succumbed to chilling or predation. A marked Sanderling, probably one of the pair, was seen feeding on the shore 500 metres from the nest on several occasions in early August; it was last noted at 00.13 on the 10th, in a flock with twelve others, and we left the area on the 16th.

OTHER NESTS

Although no long watches were kept at the seven other nests found, marking established that two adults were incubating at four of them (table 2). Two other nests were visited only once during incubation and, as the preceding section shows that both adults are rarely present together, there was no opportunity of detecting the second.

Observations at the remaining nest, found near Antarcetics Havn on 11th July, were inconclusive. It contained three eggs, which appeared to be the complete clutch. The sitting adult, thought by

Table 2. Records from eight nests of Sanderlings *Calidris alba*, north-east Greenland, July 1974

All dates refer to July. For details of the 'many' visits by observers to nest 5, see pages 167-169

Locality	Number of adults seen incubating	Number of visits by observers	Dates of observations	Estimated date of hatching
1 Karupelv, Traill Ø	2	6	7th-13th	13th
2 Karupelv, Traill Ø	1	1	14th	(?Predated 15th)
3 Karupelv, Traill Ø	2	8	14th-22nd	22nd
4 Karupelv, Traill Ø	1	1	22nd	22nd
5 Mestersvig	2	Many	9th-30th	30th
6 Mestersvig	2	2	21st-22nd	(Predated 23rd)
7 Antarcetics Havn	1	9	11th-18th	(Deserted later)
8 Ørsted Dal	2	10	15th-22nd	21st-22nd

plumage to be the female, was caught and marked at 14.00 next day. The same individual was incubating at 20.40 on 12th July, at 15.40 and 21.40 on the 14th, at 15.05 and 16.25 on the 16th and at 15.30 on the 17th. Ten minutes after the last observation it was seen feeding on the shore about 1 km away, among a flock of about 25 small waders. The observer returned to the nest at 15.55 and, simultaneously, the marked Sanderling flew in and settled on the eggs. It was also incubating at 19.45 on that day. No second adult was ever seen, but all the visits were in the same part of the day and the Mestersvig data suggest some regularity in incubation schedules. The nest could not be visited again until 7th August, when it was found to be deserted with no adults in the vicinity; the cold eggs contained well-developed embryos. Speculative explanations for the failure of this nest include an attempt by one adult to rear an incomplete clutch after loss of its mate, and death or desertion of one of a pair tending the clutch alone. Few waders were able to breed near Antartics Havn in 1974, as the snow did not melt until after the beginning of July (Green and Lloyd in preparation) and it seems unlikely that Sanderling pairs would attempt to rear two clutches in those conditions.

FAMILY PARTIES

Because of their mobility and the limited time available, it was not possible to follow individual family parties. A total of 25 single observations are, however, summarised in table 3. Of these 25 broods, 13 were either accompanied by two adults when they were found or joined by a second adult later. In all cases but one, when the adults were alike they appeared to be male and female on plumage, and it seems likely that they were parental pairs.

In the twelve instances when only one adult was seen, four were thought to be females and four males, while the sexes of the remaining four could not be determined. These observations do not necessarily mean that only one bird tended the chicks. We found that Sanderlings, Dunlins *C. alpina*, Knots *C. canutus* and Turnstones *Arenaria interpres* all sometimes fed away from their broods, leaving the other adult with the young, though they might return in times of danger.

DEPARTURE FROM BREEDING GROUNDS

Mixed flocks of adult Sanderlings, Dunlins, Ringed Plovers *Charadrius hiaticula* and Turnstones were seen as early as 8th July near Antartics Havn and in Ørsted Dal. Similar flocks were recorded by previous observers and we agree with Parmelce's belief that they include both sexes, these being non-breeders or birds whose nests have failed.

Table 3. Records of adult Sanderlings *Calidris alba* with unfledged young, north-east Greenland, July 1974

All dates refer to July. Note that a total of 12 broods were accompanied by one adult and 13 by two. The two broods seen on 30th July were in the same area, with several adults thought to include both pairs of parents

Locality	Male only	Female only	One adult not sexed	Two adults
Karupelv, Traill Ø	16th 25th 26th 27th	19th 23rd	22nd	16th 17th
Henrick Møller Dal	—	—	23rd	26th
Ørsted Dal	—	18th 20th	15th 24th	7th 9th 17th 18th 23rd 23rd 29th 29th 30th 30th
TOTALS	4	4	4	13

Sanderlings stayed with their young until they were fledged: all non-flying and newly fledged young were accompanied by at least one adult. Older juveniles gathered into flocks, usually of between four and 15 but occasionally of up to 40, sometimes with other juvenile waders. Flocks were seen around pools and on the shore near Mestersvig from early August and each remained several days before moving on. Salomonsen (1950) noted that adults may migrate at the end of July, followed by the juveniles in late August, but our observations suggest that both may start moving slightly earlier than this. At Mestersvig the adults fed less on the shore than the juveniles, but both seemed to concentrate on small adult Diptera.

DISCUSSION

Our observations lead us to the conclusion that, in our study areas of north-east Greenland in 1974, both parent Sanderlings usually tended the eggs and young, but that only one was present at any time. We do not know if this is so every year. In 1974, the snow melt was two or three weeks later than average and, in some places, the snow apparently cleared too late for waders to obtain breeding territories. The date of the melt, however, and therefore the start and duration of the wader egg-laying period, as well as the breeding season as a whole, varied greatly from valley to valley. In those favourable areas which thawed early, laying dates for first Sanderling eggs ranged from 8th to 27th June (ten estimates) in Ørsted Dal where 34 possible territories were located, and from 11th to 24th June (13 estimates) in Karupelv where 17 possible territories were found. In contrast, only a few Sanderlings bred in those unfavourable areas where the thaw was latest. At Mestersvig, only five possible

territories and two nests were found, the one first egg date obtained being 2nd July. At Antartics Havn, seven possible territories and the one late nest that failed were located.

By comparison, Parmelee thought that first egg dates on Bathurst Island ranged from 16th June to early July. If the Greenland Sanderlings were as 'opportunistic' as those on Bathurst Island, we should have expected to find signs of multiple clutches and broods in favourable areas and perhaps single clutches tended by one or both adults in unfavourable ones. We had no evidence of this and see no reason to suppose that the behaviour observed in 1974 was atypical. In view of these findings, we now offer some explanation for the confused results from the past and discuss the differences between our observations from Greenland and Parmelee's from Bathurst Island.

Parmelee and MacDonald (1960) found both a male and a female with brood patches on Ellesmere Island and concluded that, contrary to many of the early reports, both sexes incubated but either the male or the female deserted early in the incubation period. In 1970, Parmelee still believed this to be true and it was another three years before he put forward the multiple brood hypothesis (Parmelee and Payne 1973). Of the Sanderlings caught incubating or brooding in Greenland in 1974, all four males and all three females, as well as four of the five not sexed, had brood patches. Therefore, the assertion by Manniche (1910), that only females have brood patches, is obviously wrong. Other authors (table 1) have collected both males and females on eggs and, clearly, both sexes can be involved in incubation and rearing young. Koltoff (1903), Bertram *et al.* (1934), Pedersen (1942) and Rosenberg *et al.* (1970) all observed pairs with broods in north-east Greenland. The last also found two nests attended by both adults, but did not watch long enough to see whether both incubated. In view of our observations in 1974, that usually only one adult was near the nest at any time and that twelve of 25 broods were accompanied by one parent, it is not surprising that early observers often saw only a single adult at the nest or with the young; in those days, too, the adult was frequently shot, and the eggs or chicks often collected as well, so that there was little opportunity to establish whether the second adult ever incubated or tended the brood.

Another point of confusion concerns plumage. In breeding plumage, the cinnamon-washed, brown-spotted feathers of the sides of the neck and upper breast are usually more brightly coloured in male Sanderlings than females (see painting and comments in Parmelee 1970). Six of the eleven incubating birds we caught were, however, replacing these feathers by white, non-breeding plumage. Because of this early moult and because not one of the early

authors noted the sexual difference in plumage, their records of the sex of the Sanderlings they studied can be considered reliable only if they were based on dissection. Few of those sexed by Manniche were shot during the incubation period which he recorded.

Parmelee and Payne cited two other pieces of evidence in support of their hypothesis. First, referring to Schönwetter (1966) and Lack (1968), they stated that Sanderlings are like Temminck's Stints *C. temminckii* in laying unusually small eggs in relation to their body size, and pointed out that Hildén (1965) had established that Temminck's Stints lay successive clutches, each tended by one adult. Lack's analysis of Schönwetter's data shows clearly, however, that the ratio of egg weight to adult weight is low in the case of the Temminck's Stint, but that the Sanderling is not far below its predicted place on the graph, while the amount of intraspecific variation is not mentioned. Our own data demonstrate that adult weight changes over the season and that egg weight decreases during incubation, so the relation of one to the other varies according to when the measurements are taken. Clearly, close study of both adults and eggs in the same area is required to obtain more accurate data before final conclusions can be drawn.

Secondly, Parmelee and Payne stated that, because Sanderlings are the commonest and most successful of Bathurst Island waders, they are better adapted than the others to the harsh, variable weather conditions there. The time of spring thaw in north-east Greenland is variable, both annually and locally, but the subsequent weather is relatively fine and settled. The Ringed Plover is the commonest wader, while the Dunlin and the Sanderling are less common and less widespread, each occupying different types of nesting habitat. Both sexes of the Ringed Plover and the Dunlin incubate and these species do not lay multiple clutches. If the Sanderling did so, it could perhaps take fuller advantage of the variable local conditions, but the behaviour reported from Bathurst Island does not appear to occur in north-east Greenland.

There are striking differences between the incubation schedules in the two areas. The Sanderlings incubated for 96% of 24 hours at one Greenland nest, but for 81% over 14 days' continuous watch at one Bathurst Island nest. Although the Greenland observations were for only one 24-hour period, attendance was well above Parmelee's range of daily values (67-89%). Furthermore, this high rate occurred early in the incubation period when Bathurst Island attendance was poor. The later discontinuous 24-hour Greenland watch also suggested a high rate. In northern Alaska, Norton (1972) recorded incubation for 96-98% of the time for the Dunlin and the Baird's Sandpiper *C. bairdii*, two species in which both adults incubate, and for about 85% for the Pectoral Sandpiper *C. melanotos*,

which is polygynous and in which only the female incubates, leaving the nest for long periods to feed. The Greenland Sanderling records appear similar to the species in which both sexes incubate, but the Bathurst Island data resemble those of the Pectoral Sandpiper. Norton suggested that species with relatively smaller and, therefore, faster-cooling eggs may require greater tolerance to embryonic chilling. Such species, he suggested, are the Temminck's Stint, the Sanderling and the phalaropes *Phalaropus spp.* Perhaps the tolerance of Sanderling eggs to cold and the ratio of their weight to that of the adults differ between Bathurst Island and north-east Greenland.

Further study is clearly required of the breeding behaviour and incubation schedules of the two Sanderling populations. Speculation about the adaptive significance of the behaviour may be useful in indicating lines of investigation. The more continuous incubation in Greenland may lead to earlier hatching, and thus be related to a shorter season, or it might be required if the ambient temperature were lower or the weather conditions more adverse, giving a greater risk of chilling. The reduced feeding time of a Sanderling tending a nest alone may be tolerable only if food supplies are abundant, close by and reliable, or if it arrives on the breeding grounds in good condition with food reserves. Alternatively, if both parents rear the brood, they may feed in a different area from the chicks, and take turns to do so, thus avoiding competition with their offspring for food. Conversely, departure of one adult to rear a second brood elsewhere may be an adaptation to a poor food supply. The presence of both birds may be an advantage in distraction display if predators are common, but less frequent movements near the nest when both incubate may be an adaptation to numerous predators. Obviously some of these suggestions are compatible and others contradictory.

Our study of Sanderlings in north-east Greenland showed no evidence that 'only a single individual incubates at any one nest and that one bird alone later attends the brood' (Parmelee and Payne 1973). In most instances, both adults were observed to attend the nest and the brood. Nor were we able to confirm that 'Sanderlings appear to be opportunistic, individual birds being able to alter their reproductive effort to accommodate local field conditions' (Parmelee and Payne 1973). It seems, therefore, that nest attendance by one adult and the occurrence of multiple broods are both more frequent on Bathurst Island than in north-east Greenland.

The Sanderling is considered to be a monotypic species and the areas studied on Bathurst Island and in north-east Greenland are about 2,300 km apart. Ringing recoveries and the results of dye marking (Parmelee 1970, Green 1975) suggest that the two populations differ in migration and wintering areas, which are in

America and the Old World respectively. Unpublished work in Britain also shows differences in moult and migration between passage migrants and wintering birds, which probably originate from both Greenland and Siberia. Differences have been demonstrated between populations of other wader species in migration routes, wintering areas, and the timing of moult and breeding (e.g. Salomonsen 1955, Holmes 1971, Maclean and Holmes 1971, Pienkowski *et al.* 1976), and we suggest that intraspecific differences in breeding strategy may also occur. This may give support to the suggestion by Pitelka *et al.* (1974) that multiple nesting systems have evolved independently on several occasions in various species.

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SUMMARY

Studies of Sanderlings *Calidris alba* breeding in north-east Greenland in 1974 are compared with those of earlier authors, especially of Parmelee and others on Bathurst Island in arctic Canada. Observations in Greenland of one pair throughout the season, including a continuous 24-hour watch at the nest, and of seven other nests and 25 family parties, showed two adults sharing incubation at most nests and probably attending most broods, although one individual often left the brood for long periods. This behaviour contrasts sharply with the observations on Bathurst Island, where only one adult incubated and attended the brood and where two clutches, each incubated by one adult, may be laid in favourable years. During the 24-hour watch at the Greenland nest, the eggs were incubated for 96% of the time. This is similar to schedules observed for other waders in which both sexes incubate, and contrasts with records from Bathurst Island where, over a 14-day period, the eggs were incubated for 81% of the time, a rate comparable with that of the Pectoral Sandpiper *C. melanotos*, in which only the female incubates.

We conclude that, contrary to some earlier reports, both parent Sanderlings attend the nest and the brood in some parts of their breeding range and suggest

that intraspecific differences in breeding strategy may occur between different arctic populations. More detailed observations of marked birds in different parts of the range are required before Sanderling breeding behaviour can be fully understood.

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PLATE 17. Sanderling *Calidris alba* standing over usual clutch of four eggs, Daneborg, NE Greenland, July 1964 (photo: Benny Gensho). A study of breeding behaviour in NE Greenland in July 1974 (pages 165-177) showed that both adults shared incubation, contrary to previous experience in arctic Canada.



PLATE 18. View SE near Mestersvig, NE Greenland, and incubating Sanderling *Calidris alba* (circled), mid-July 1974; the stream and boggy zone near the snow were feeding areas. Below, close-up of this study nest (pages 167-169) amongst dwarf willows *Salix arctica* and lichens (photos: M. W. Pienkowski)





PLATE 19. Two more nests, both again among dwarf willows with one also set off by a clump of mountain avens *Dras octopetala*, Karupely, Trail O, NE, Greenland, July 1974. The lower has three newly hatched chicks, variegated buff and black with speckles of white, and one egg (photo: J. F. Williams).

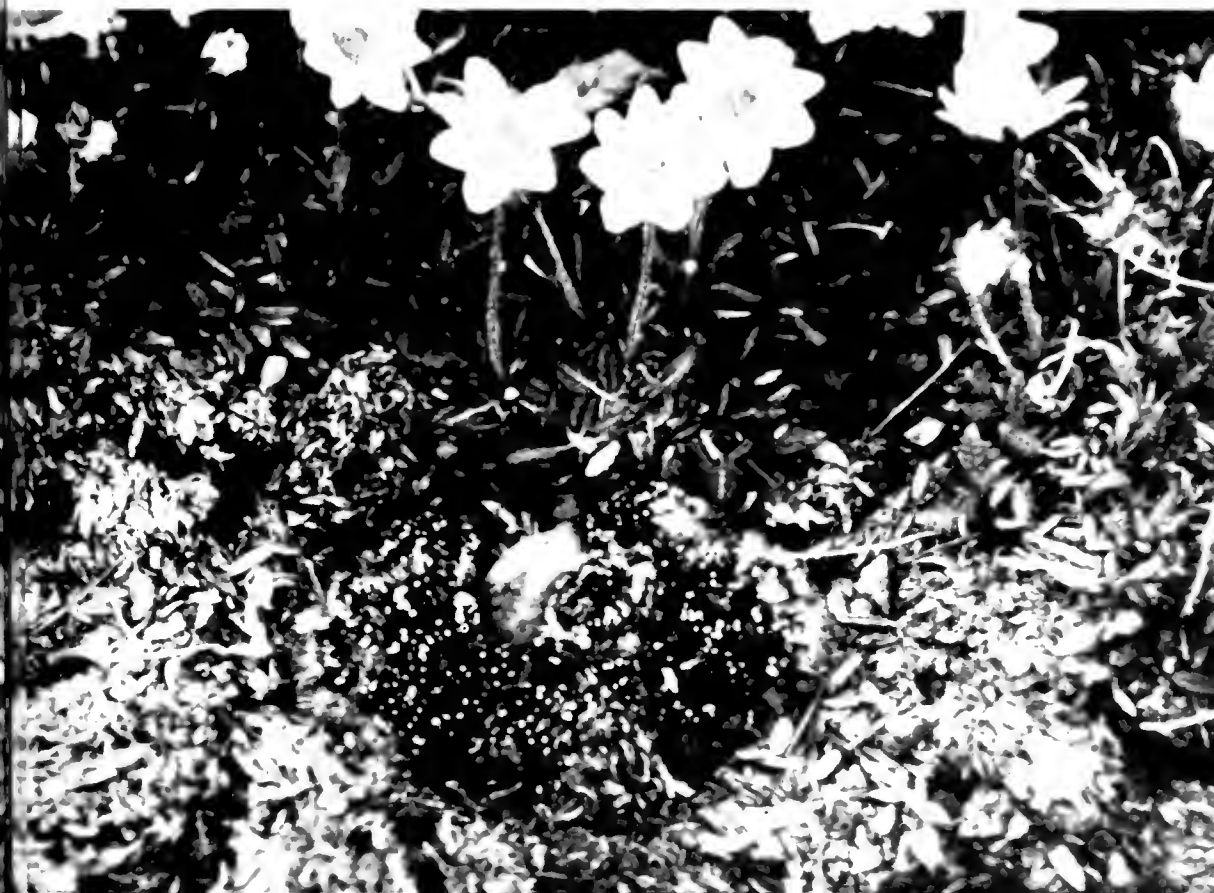




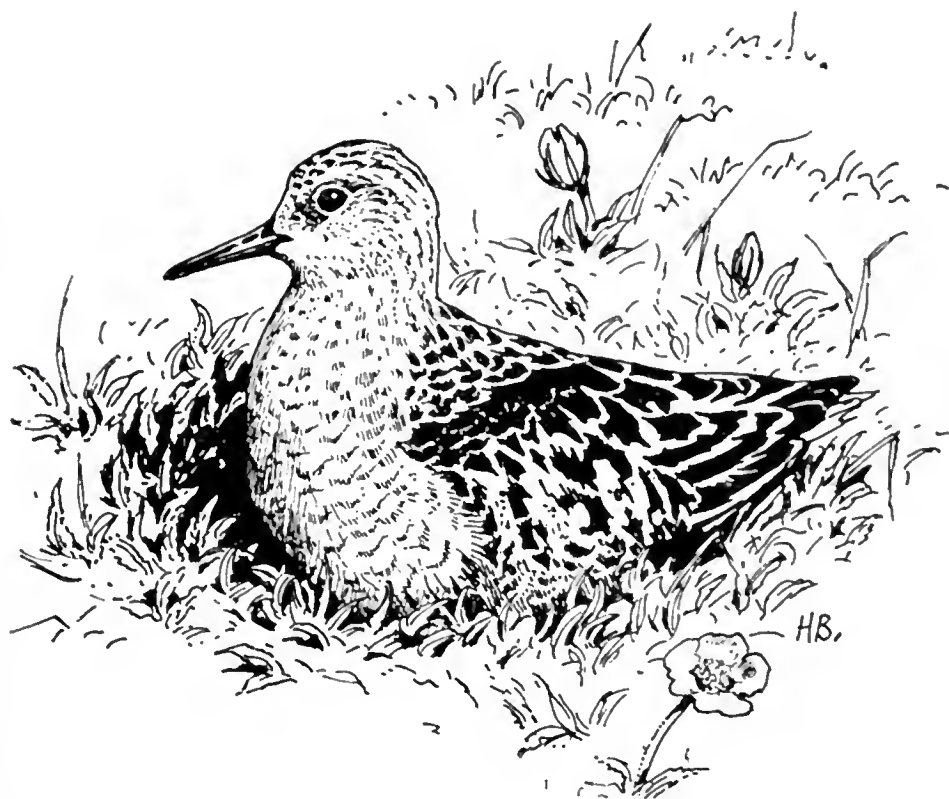
PLATE 20. Above, Sanderling *Calidris alba* foraging in the snow melt a few days after arrival, Daneborg, NE Greenland, late May 1964. Below, the same nest as plate 17; the bird's pale chestnut upperparts and breast, mottled black and white, contrast with the pure white belly (photos: Benny Gensbol)



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Notes

Reactions of Goldeneyes to boating Until 1966 Chasewater (Cannock Reservoir), Staffordshire, held fewer than ten wintering Goldeneyes *Bucephala clangula*. In subsequent winters higher numbers have been recorded. Although the reasons for this increase are unknown, the flocks are subject to a great deal of disturbance which may be inhibiting further increase; numbers fluctuate markedly from day to day and, particularly at weekends, Goldeneyes are sometimes entirely absent (at least in afternoons). Other waters often have an increase in late winter and early spring but this is not evident at Chasewater, and in the winter of 1974/75 the totals from late January were much lower than in December, almost certainly because of the increased frequency of midweek boating. Powerboating, water-skiing and sailing take place almost every winter weekend and the former activities are becoming more and more common on weekdays; the whole of the reservoir surface is used, except for a small pool at the northern end which is separated by a narrow causeway and on which Goldeneyes are rarely seen.

Repeated observations have shown that Goldeneyes often fly when people on the shore approach closer than 100 or 200 metres, but invariably settle again elsewhere on the water. A single sailing dinghy, however, may be sufficient to cause over 60 Goldeneyes to take flight and most to leave altogether within a few minutes, the remaining birds flying up each time the boat approaches to within 350-400 metres and generally leaving within an hour. A powerboat causes virtually instantaneous flight as soon as it appears on the water, the majority of birds leaving, and, if it traverses the length of the reservoir, all the rest leaving within a few minutes.

On 4th December 1974, 38 Goldeneyes undisturbed 100 metres offshore suddenly took flight together and flew right away out of the area when a powerboat had travelled barely 10 metres out from the jetty (and was still 550 metres from the birds). In the strong wind it was inaudible to me and difficult to see against the sun, but the Goldeneyes had reacted immediately to it, as on many other occasions. There was no sign of any other possible cause of their sudden, simultaneous departure. On 28th January 1975, I drove to the lakeside car park and Goldeneyes 200-250 metres offshore became alert for a few seconds; other cars moving past or stopping caused momentary anxiety. Then two cars, both towing powerboats, drove past without stopping and the closest birds, and a large group at about 350 metres, took flight, apparently reacting to the sight of the boats even without the sound. When one boat emerged slowly on to the water shortly afterwards, 28 Goldeneyes fully 700 metres away flew off before it had travelled 30 metres, and eventually

all 55 birds present (except for one or two very harassed individuals) left. This apparent reaction to powerboats on the shore has been repeated on several occasions.

Early in the winter of 1974/75 there seemed to be a more rapid return after disturbance than in previous years, when a whole week was often necessary for all displaced birds to return, but from late January 1975 the increasing frequency of boating meant that numbers did not regain their former levels at all; some birds perhaps return sooner but generally they do not react any less strongly with increasing experience of the boats.

Clearly the presence of Goldeneyes at Chasewater depends on the availability of a second, 'refuge' water: flocks have been watched flying out of sight towards Blithfield Reservoir (15 km to the north), but numbers there have been inadequate to account for up to 60 displaced birds from Chasewater in addition to the regular flock. Chasewater must presumably be more attractive to Goldeneyes or else the 'refuge' water already holds as many as it can support, whereas it is likely that the potential maximum at Chasewater is rarely, if ever, reached.

R. A. HUME

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Glaucous and Iceland Gulls in the west midlands The increasing tendency of the commoner species of gull to winter inland has been well documented (see, for example, *Bird Study*, 1: 129-148; 14: 104-113). Most publications, however, still describe the Glaucous Gull *Larus hyperboreus* and the Iceland Gull *L. glaucoides* as exceptional inland, except in the London area. Recent experience in the west midlands, particularly at the larger Staffordshire reservoirs, indicates that both these species are in fact regular visitors to large inland gull roosts. Up to and including the winter of 1974/75, 65 Glaucous Gulls and 50 Iceland were recorded in the old counties of Warwickshire, Worcestershire and Staffordshire (including the now separate county of West Midlands), 83% of them since 1968/69. During the course of a single winter as many as eleven Glaucous

Table 1. Records of Glaucous Gulls *Larus hyperboreus* and Iceland Gulls *L. glaucoides* in the old counties of Warwickshire, Worcestershire and Staffordshire

Figures for the winter of 1974/75 are provisional

		pre-1966	66/67	67/68	WINTER					71/72	72/73	73/74	74/75	TOTALS
					68/69	69/70	70/71							
Glaucous Gull	adult	1	0	0	0	4	1	4	3	3	3	3	19	
	immature	9	1	2	5	5	6	7	4	4	4	3	46	
	TOTALS	10	1	2	5	9	7	11	7	7	7	6	65	
Iceland Gull	adult	0	0	0	0	2	3	4	5	4	5	5	23	
	immature	6	0	1	1	5	4	4	3	2	2	1	27	
	TOTALS	6	0	1	1	7	7	8	8	6	7	6	50	

and eight Iceland Gulls have been identified, and on 11th February 1973 no fewer than three Iceland Gulls were recorded together at Blithfield Reservoir, Staffordshire.

All the known records in the three counties are summarised in table 1, adult and immature birds being shown separately. The totals should be regarded as minima, since allowance has been made for the possibility of a single individual making several appearances at the same or neighbouring roosts during the course of a winter. The monthly distribution of records is given in table 2.

Table 2. Monthly distribution of the records summarised in table 1 above

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Glaucous Gull	2	3	14	10	18	15	3	0
Iceland Gull	0	1	7	12	12	15	2	1

It is evident from these figures that since the late 1960's both species have been of regular occurrence, Glaucous generally appearing between December and March and Iceland between late December and March. The total number of birds is not large but, nonetheless, compares favourably with many coastal areas of similar latitude.

An interesting feature of the records is the high percentage of adults involved, particularly in the case of the Iceland Gull. Taking all records into account, 29% of Glaucous and 46% of Iceland were adults; considering only those occurrences since 1969/70 (77% of all records), these figures become 38% and 52% respectively. According to the literature, adult birds of both species are relatively sedentary and rarely move very far south. The increasing proportion of adults in the west midlands may therefore presage a change in the wintering habits of these two species and it will be interesting to see if this trend is maintained.

ALAN R. DEAN and BRIAN R. DEAN

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Further records of foot-paddling by gulls on grassland

During the winter of 1974/75 I spent many hours watching gulls on the damp, sloping grassland which surrounds Drift Reservoir, Penzance, Cornwall. Many of the Herring Gulls *Larus argentatus*, adults and immatures alike, commonly foot-paddled the ground with rapid and alternate leg movements, the body maintaining a very upright stance. It is now well known that such activity causes earthworms to rise to the surface, where they are quickly eaten by the gulls (see *Brit. Birds*, 42: 222-223; 43: 162-163; 55: 117-119).

Neither the Common Gulls *L. canus* nor the Black-headed Gulls *L. ridibundus* which were present were seen to foot-paddle the grassland. Although the activity has been recorded elsewhere for the former species (*Brit. Birds*, 43: 162-163; 55: 118), Black-headed Gulls have yet to be seen applying the technique on grassland. However, I did see three instances of foot-paddling by immature Great Black-backed Gulls *L. marinus* which seemed to be copying the Herring Gulls, their action being rather ponderous and deliberate. Apparently these are the first records for the species, though A. G. Parsons (*in litt.*) tells me that on a few occasions he also has seen *marinus* foot-paddling grassland for earthworms.

The Herring Gulls' success rate varied according to the wetness of the ground from 35 worms/15 minutes when the grassland was really damp down to six worms/15 minutes in drier, though still soft, conditions. Seldom did a gull foot-paddle on a grass patch for more than nine minutes, after which it moved to another patch a few centimetres away and resumed the activity. Several times, when the gulls were disturbed and left the site, I immediately examined the ground where they had been foot-paddling. Often, the earthworms were still coming out of the ground but after about 15 minutes they retreated. By then simulating the gulls' behaviour by gently tapping the ground I was quickly able to make the earthworms reappear. Similar attempts in areas where the gulls had not worked, however, were much less successful and often wholly negative.

I sent some of the worms to Dr Nigel Webb of the Institute of Terrestrial Ecology and although the specimens arrived in poor condition he identified them as species of *Lumbricus*, a genus which hitherto was thought not to respond in this way to ground vibration (*Brit. Birds*, 55: 117).

BERNARD KING

'Gull Cry', 9 Park Road, Newlyn, Cornwall

Carrion Crows feeding offspring in November On investigating a report of four partially and symmetrically albinistic Carrion Crows *Corvus corone* which had been observed near St Ives, Cornwall, from August 1974, I found that the party consisted of two adults and two immatures. Although the birds were often scattered they were never far from one another and occasionally came together as a family party. Several times, when the adults found bread which was rather hard and therefore took a long time to break into edible pieces, they were joined by the young birds, which made squawking noises accompanied by begging actions. The immatures often took pieces which had been broken off by the adults but continuously begged for the food by lowering and extending their heads and necks, with bills slightly open and wings held out a little from their

bodies. Very infrequently the adults quickly thrust bread into the mouths of the young birds. I last observed this behaviour on 24th November 1974. Apparently there are few documented records of such long post-fledging associations between parents and young.

BERNARD KING

'Gull Cry', 9 Park Road, Newlyn, Cornwall

Reviews

Flamingos. Edited by Janet Kear and Nicole Duplaix-Hall. T. & A. D. Poyser, Berkhamsted, 1975. 246 pages; seven colour plates; 48 black-and-white plates; numerous drawings, maps and diagrams. £8.00.

In July 1973 an international gathering of flamingo specialists met at Slimbridge, Gloucestershire. The results are now available to a wide audience through this book of 39 chapters derived from papers given there by 30 authors representing all continents where flamingos occur. This clear presentation of data on their status has been eagerly awaited by conservationists and ornithologists interested in this unique group of birds, one of the oldest alive today.

The ecological requirements of flamingos are narrow, which has led to breeding and migratory habits of seemingly erratic character, not yet fully understood. The Camargue Greater Flamingos, which are more intensely studied than any other population, are discussed by A. R. Johnson. The majority of these move south-west from Camargue to Andalusia and north-western Africa. The delta of Guadalquivir is probably the main winter area; over one third of all recoveries of ringed birds occurs there, perhaps because flamingos are considered game in Spain. Other Camargue flamingos migrate to Portugal, Sardinia, Morocco, Algeria and Tunisia, with recoveries also from Turkey, Libya, Mauritania and Senegal. In Spain breeding is infrequent and often unsuccessful, which emphasises the importance of preserving the Camargue colony, the only permanent one in Europe. (The Russian colony at the north-eastern shore of the Caspian Sea disappeared after 1946 as a result of the man-made hydrographic changes in this area.) Data on this species as a breeding bird in northern Africa are rather scarce, but colonies have been recorded in Tunisia, Morocco and Mauritania.

Leslie Brown gives an excellent chapter on the status, movements,

breeding success, population dynamics and conservation necessities of the Greater and Lesser Flamingos in eastern Africa. All his available figures suggest that both species must be long-lived. A new phenomenon which greatly affects the productivity of the Greater Flamingo at Lake Elmenteita in Kenya is the predation by Marabou Storks during the last years. Both Brown and H. H. Berry (in his chapter on South West Africa) assume that the East African population of flamingos is separated from the Etosha Pan-Makarikari Pans population in South West Africa and Botswana. However, there is a regular passage of Greater Flamingos in both Rhodesia and Malawi, so there might be connections between the two populations. On the Etosha Pan a remarkable walking migration of Lesser Flamingos was observed in 1971, released by receding water. Four colonies of chicks trekked 80 km in small groups, averaging three km a day. Although a few adults accompanied the walking chicks, the parents probably found and fed their offspring during the entire migration, flying return journeys of up to 100 km to obtain food. This extraordinary evacuation operation was successful.

Similar feeding movements are described by Jan Rooth for the Caribbean Flamingo on Bonaire. Here the birds severely diminished the local food supply, but adults flew to Venezuela, a distance of 140 km, returning after about twelve hours to feed their young. They also turned to another food source near the colony, eating mud, which is rich in organic material. Recent developments on Bonaire have changed the food situation considerably, eliminating the staple food, Brine-flies *Ephydra cinerea* and Brine-shrimps *Artemia salina*, but the flamingos have been able to switch completely to the molluscs *Cerithium* and *Cerithidea*. Rooth also describes how commercial exploitation on flamingo sites can be managed in a way acceptable to the birds.

M. P. Kahl summarises the distribution and numbers of all species and subspecies of flamingos. The estimated total populations are: Caribbean Flamingo 60,500; Greater Flamingo 790,000; Chilean Flamingo 500,000; Lesser Flamingo 6,000,000; Andean Flamingo 150,000; and James's Flamingo 21,700. Other chapters of the book deal with flamingos in captivity (Sir Peter Scott believes that within ten years zoos should be breeding all the flamingos they need), ethology and physiology.

Flamingos are seriously threatened only by man. Their specialisation makes them vulnerable to human depredations and disturbances, particularly in the Andes and in salt and soda exploitation areas of various parts of the world. This book, with its wealth of data, is a valuable examination of their status and of what can be done to maintain their numbers at present levels.

KAI CURRY-LINDAHL

Pine Crossbills. By Desmond Nethersole-Thompson. T. & A. D. Poyser, Berkhamsted, 1975. 256 pages; one colour and 24 black-and-white photographs; numerous tables and figures. £5.00.

Desmond Nethersole-Thompson recounts his early days with Crossbills in East Anglia and his first meetings with Scottish Crossbills in Strathspey, where he was struck by the different calls of the northern birds. Thus started 40 years of careful study, and in this monograph he describes the life history and behaviour of the Crossbills of the Scottish pine forests. These interesting birds live in a fine environment where remnants of the old Caledonian forests nestle in the central and eastern glens of the Highlands.

As usual, the author has researched his subject fully; his story starts with reference to the bird's place in history and legend, and its fascinating content is a forerunner to a thoroughly interesting book. One of the main topics of the book is the difficult taxonomic problem of whether to regard the Scottish Crossbill as a distinct species, a subspecies of the Common Crossbill *Loxia curvirostra* or a subspecies of the Parrot Crossbill *L. pytyopsittacus*. There is a discussion of the relationship between various crossbills and their main food trees, the larger-billed birds feeding on the harder cones of pine trees. Frequent comparison is made between Scottish Crossbill activities and those of Common, Parrot and Two-barred Crossbills. Nethersole-Thompson decides to re-designate the Scottish Crossbill as *L. pinicola pinicola*; in a special appendix, A. G. Knox comes down in favour of an earlier designation as *L. scotica* while Dr I. Newton regards it as a subspecies of *L. curvirostra*. The reader can make his own choice. There are chapters on egg-collectors, haunts and neighbours, flocks, courtship, territory, aspects of breeding biology, voice, food, competitors and predators. Much of this information is personal observation backed by correspondence with other crossbill-watchers; there are many original data. The final chapters, on distribution, numbers, movements, and speculations, reveal that the author estimates the Scottish Crossbill population as low as 100 pairs in the 1960's and 320 pairs in the 1970's; he stresses the difficulties of estimating the population and the erratic nature of the bird but suggests a stock of about 1,500 adult birds in recent years, its future looking reasonably secure.

The book is rounded off by much extra information in the form of five appendices and 17 tables; I found the nest diaries rather difficult reading and my only criticism of the book is occasional repetition. The photographs are good while the line drawings are attractive; I liked the nice bright cover. In my view the book is a superb addition to the author's previous three monographs on Greenshank, Snow Bunting and Dotterel. All four should be taken

as a whole, and as such reveal a fine story about four special Scottish birds, the superb Highland area and one of Scotland's most notable ornithologists.

ROY H. DENNIS

To Save a Bird in Peril. By David R. Zimmerman. Coward, McCann and Geoghan Inc., New York, 1975. 286 pages; illustrations and maps by Nancy Lou Nahan. \$9.95.

This is one of the most thought-provoking books I have read about tampering with nature, for which a new name has been coined: 'clinical ornithology'. In a generally readable and raucous style, Zimmerman reports in detail on what has been done to save those species whose numbers have dwindled so low that they are thought to be in danger of extinction. These species live mostly in the New World and include, among others, the Californian Condor, Whooping Crane, Néné, Osprey, Peregrine, Cahow and Kirtland Warbler. He outlines the techniques used to resuscitate species which have been hard hit by some special beastliness of man—poison or pollution—or which have been unable to adapt to physical changes in the environment. Indeed, nearly all the schemes discussed by Zimmerman fall into one or other of these two categories. He reports on the arguments, the criticisms, the bitterness, perhaps the 'sour grapes' when the schemes progressed slowly or went awry, as well as on the happiness and the successes.

Inevitably a number of questions spring to mind. For instance, should we interfere with evolution? If a species cannot adapt to changes in the physical environment should one endeavour to keep it alive artificially? Sad as it undoubtedly is, the vultures of southern Europe are dwindling away because of 'cleaner' farming methods; can we really believe that 'vulture restaurants' are going to prevent their retreat? Is it really possible to maintain a viable population of vultures for ever? Artificial feeding points, whether in gardens or on the Spanish plains, are fun and may save a few individuals, but they rarely save populations. Is spending thousands, if not hundreds of thousands, of dollars on rescuing some obsolete species really wise use of conservation resources? At some stage we will have to switch off the 'life-support system'. Similarly, he also makes a number of questionable statements about the value of some of these techniques for conservation. Is sex hormone treatment, which he apparently applauds, what bird protection is coming to? Is the doubling of an animal's reproductive yield a tool of great conservation value?

Zimmerman greets all these efforts with enthusiasm. But it seems to me that he has missed the essential difference between schemes to rescue species that cannot adapt to physical changes in the environment and those for species which face a temporary

setback because of some sudden large-scale environmental accident, where, once the effects of the accident have been cleaned up, the natural resilience of the species will allow it to recover.

The book is good entertainment, gives one plenty to think about and should give heart to all zookeepers who want a good excuse to rear birds in captivity; but it should also be read by anyone interested in bird protection.

PETER CONDER

ALSO RECEIVED

We apologise for the late publication of the following list of books also received in 1975.

Animal Worlds. By A. T. H. Rowland-Entwistle and Jean Cooke. Sampson Low, Maidenhead, 1974. £1.50.

Birds. By Neil Ardley. Sampson Low, Maidenhead, 1974. £1.50.

Birds of New York State. By John Bull. Doubleday/Natural History Press, New York, 1974. £29.95.

Checklist of the Birds of Australia. Part 1. Non-Passeriformes. By N. T. Condon. Royal Australasian Ornithologists Union, Melbourne, 1975. No price given.

Finches and other Seed-eating Birds. By Robin L. Restall. Faber and Faber, London, 1975. £7.00.

How Birds Live. By Robert Burton. Elsevier-Phaidon, London, 1975. £3.95.

Outlines of Avian Anatomy. By A. S. King and J. M. McLelland. Bailliere Tindale, London, 1975. No price given.

Studying Birds in the Garden. By T. J. Jennings. Wheaton, Exeter, 1975. No price given.

The Second Bird-Watchers Book. By John Gooders (editor). David and Charles, Newton Abbot, 1975. £3.95.

Waterfowl Populations in Denmark. By A. H. Joensen. Game Biology Station, Kalø, Denmark, 1974. \$9.00.

Letters

The continuing slaughter of birds of prey in Britain Your recent editorial (*Brit. Birds*, 68: 481-483) on the World Conference on Birds of Prey, organised by the International Council for Bird Preservation in Vienna in October 1975, stimulates thought on the home front. At the conference, an Austrian delegate provided an estimate of 14,000 birds of prey slaughtered annually in his country. What would a UK estimate be? Half this figure? Or twice as many?

The overriding importance of habitat loss and pesticide effects has distracted attention from the persistent attrition of raptors by shooting interests. Conservationists, acknowledging the many responsible landowners and enlightened keepers, as well as being aware of the advantages of maintenance of cover and control of trespass on kept shoots, often adopt an ambivalent posture. Impressions and some evidence, however, suggest destruction of

birds of prey on a grand scale. C. R. Tubbs (1974, *The Buzzard*) calculated that of all young Buzzards *Buteo buteo* that fly 70-90% die before reaching maturity, chiefly through shooting. Many estates in Scotland will tolerate neither Golden Eagles *Aquila chrysaetos* nor Hen Harriers *Circus cyaneus* at any time and, to my personal knowledge, there are estates in the Midlands where even Kestrels *Falco tinnunculus* are killed during the rearing season.

Could not those with wide and current appreciation of the position be persuaded to stitch together an intelligent annual estimate? The purpose would be two-fold: to put direct destruction into a sharper perspective, and to present the shooting camp with a challenge it could not ignore.

DEREK BARBER

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Migration in the doldrums I thought at first that the title of D. I. M. Wallace's 'Viewpoint' (*Brit. Birds*, 68: 202-203) would be a confirmation of my feelings of a decline in visible migration over the last few years. My first years on this tip of the Llyn peninsula, Gwynedd, were rewarding: in 1967 and 1968 good movements of commoner species took place overland and offshore, and there were some interesting rarities, too. Since then, however, I have become more and more disappointed. As an amateur, it is all too easy to rely on hunches and prejudices, but I do remember the 'falls' of *Phylloscopi* now and again in spring and autumn. Where have they gone? Where are the Sand Martins *Riparia riparia* and the Grasshopper Warblers *Locustella naevia*? I heard only one of the latter singing in spring 1975 and saw two.

Monthly reports in *British Birds* give the impression of as many birds as ever, but the increasing number of observers renders this evidence largely negative. With regard to seabirds, it appears to me here that the Irish Sea is not a particularly populous flyway and needs storm-force south-westerlies at the right time to drive birds into it from the Atlantic approaches. Although such situations occurred in September 1967 and October 1968, they have not, however, been repeated since in similar conditions.

Of course, one of the dissipators of doubt could be the British Trust for Ornithology. Whatever the merits of ringing, it is our main source for estimating the numbers of birds migrating through Britain in spring and autumn. Presumably the records are filed at BTO headquarters. Is anyone at work on their analysis? Are there any notable declines? When are we to have the information? Mr Wallace proposes the setting up of a study group to resume work on migration. In addition would it be possible to form a body of people like myself, living at key points in Britain, who

could correlate their records and observations and possibly throw more light on shifts in migration, fluctuations in numbers and relative weather patterns?

R. S. THOMAS

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Plunge-diving and porpoising by aquatic seabirds Seabirds show two mutually exclusive types of adaptation for the exploitation of their environment. They may have long wings conferring mobility in the air with their legs placed forward near the centre of gravity for perching and seizing prey, like the fish-eating raptors, gulls, terns, tropicbirds and frigatebirds, which are adept at seizing prey near the water surface but helpless in the water; or they may have short wings with legs set far back suited for swimming, which render them clumsy and helpless on the land and in the air, like the penguins, divers, grebes, auks and sea-duck. The details of their behaviour have been analysed by N. P. Ashmole in *Avian Biology* (1971, 1: 223-286). Bernard King has now published three notes (*Brit. Birds*, 65: 480-481; 67: 77; 68: 383-384) reporting observations of the plunge-diving behaviour characteristic of the aerial species by extremely aquatic species, namely the Manx Shearwater *Puffinus puffinus*, the Shag *Phalacrocorax aristotelis*, the Guillemot *Uria aalge*, the Razorbill *Alca torda* and the Puffin *Fratercula arctica*. Before this behaviour is accepted as a normal phenomenon it deserves more scrutiny.

Many of our seabirds appear to obtain a large part of their food where large fish and cetaceans drive shoals of smaller fish to the surface. The aerial seabirds rapidly gather from all directions to feed in clouds over such shoals, whereupon the fish soon dive again, so it behoves the birds to get there as soon as possible. The diving seabirds often join in, flying up and landing with a spectacular splash which Mr King appears to have identified as a 'plunge dive'. If one is close to them, however, it can usually be seen that they land on their bellies and dive afterwards. Some of them may also occasionally make spectacular dives straight into the water to avoid predators, as I have seen a Shag do when it was shot at, but I doubt whether these birds have sufficient control over their movements in the air to hit a fish with an aimed plunge any more than an aerial seabird could pursue it under water. I suggest the aquatic species merely crash-land over fish-shoals, and dive afterwards.

Mr King also quotes an account published by A. C. Bent (1919, *Life Histories of North American Diving Birds*) of diving Puffins leaping out of the water. I have also seen the larger auks do this, notably guillemots when I was sailing under the cliffs of Bear Island in early July 1972. The water was clear and fairly calm and as we approached rafts of birds they sometimes dived and flew

about under the boat in much the same way that the gulls were flying about above it. It was in fact very noticeable that they flew much better under water than they do in the air, and individuals sometimes leapt right out of the water and then dived again immediately nearby just like a cetacean, in the way also described for penguins. It was difficult to see quite what they were doing because they moved so fast, but they must have been able to see each other under water and may have been chasing each other, or they may have been coming up to look at us. I have the impression that they may also sometimes behave like this in the middle of boiling shoals of fish, though there again it is difficult to see quite what is happening. Otherwise I do not remember seeing the behaviour away from the breeding colonies, which suggests that it must be some form of display.

W. R. P. BOURNE

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The bird collection in the Manchester Museum The important Dresser Collection of bird skins has been housed in the Manchester Museum since 1899 and was actively curated until the death of T. A. Coward in 1933. Since then the museum skin collection of many thousands of specimens has been carefully looked after, but neither greatly used nor added to. Successive keepers have carried out various re-organisations and E. L. Seyd, the recently retired Keeper of Zoology, had partially re-catalogued the collection.

I have recently taken over as Keeper of Zoology and, as an ornithologist, am keen to add to our skin collection and to see it more widely used. The Dresser Collection is of birds from all over the world and is effectively representative but is rather low on numbers of each species, and I would like to build up the numbers of European and British birds, no matter how common. This is necessary if the collection is to be of use to taxonomists and ringers who need to make measurements and comparisons of many specimens of each species.

As it is neither practical nor desirable for the museum to 'collect' (to use a euphemistic term) British wild birds, and as many dead birds are found by birdwatchers, naturalists and other members of the public, I would like to ask anyone finding recently dead birds to send them to the Manchester Museum for preparation into skins. It is also possible that there are still collections of bird skins in private hands posing storage problems for their owners, who would like to dispose of them but do not know how to go about it. It would welcome donations of any such collections as useful additions to the museum's bird material. Mounted (i.e. 'stuffed') specimens are not so welcome, as they are difficult to store, but particularly well

mounted or interesting examples with good accompanying data will be accepted. Freshly dead birds should be frozen or injected with 1 or 2% formalin before being packed in muslin, tissue or cotton wool. They can then be dispatched in a tin or packed in a polythene bag within a stout cardboard box. Collecting details should be as full as possible, but must at least include the date and locality.

At the same time as asking for these specimens I would like to draw attention to the existence in Manchester of this extensive collection, which includes many type and figured specimens, and to encourage ornithologists and ringers with serious enquiries to use it. It is also hoped that more members of the public with bird enquiries will use their local museum and its facilities.

M. V. HOUNSOME

Keeper of Zoology, The Manchester Museum, The University, Manchester
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Requests for information

Identification of West Palearctic gulls A series of identification papers for all West Palearctic gulls is currently being prepared. The species involved are: Ivory Gull *Pagophila eburnea*, White-eyed Gull *Larus leucophthalmus*, Sooty Gull *L. hemprichi*, Audouin's Gull *L. audouinii*, Ring-billed Gull *L. delawarensis*, Common Gull *L. canus*, Herring Gull *L. argentatus*, Lesser Black-backed Gull *L. fuscus*, Great Black-backed Gull *L. marinus*, Glaucous Gull *L. hyperboreus*, Iceland Gull *L. glaucoides*, Great Black-headed Gull *L. ichthyaetus*, Laughing Gull *L. atricilla*, Grey-headed Gull *L. cirrhocephalus*, Franklin's Gull *L. pipixcan*, Mediterranean Gull *L. melanocephalus*, Black-headed Gull *L. ridibundus*, Slender-billed Gull *L. genei*, Bonaparte's Gull *L. philadelphia*, Little Gull *L. minutus*, Sabine's Gull *L. sabini*, Ross's Gull *Rhodostethia rosea*, Kittiwake *Rissa tridactyla*. Both specific identification and the identification of all ages from juvenile to adult will be covered for all species. It is hoped that a comprehensive selection of black-and-white photographs of immatures and adults will accompany the papers, and anyone who feels that he may have suitable material is asked to contact **P. J. Grant, 14 Heathfield Road, Ashford, Kent TN24 8QD** (telephone Ashford 24574) for further details.

Colour-ringed Water Rails Water Rails *Rallus aquaticus* are being colour-ringed in the Netherlands. Anybody observing any such birds is kindly requested to send details of locality, date, the colours and on which leg(s) to **G. H. J. de Kroon, Havendijk 56, Gorinchem, Netherlands**.

News and comment *Peter Conder*

Politics and the safety of the environment Just how threatened our natural environment is, how subject to the huffs and puffs of politicians, has again been

demonstrated forcibly in the last few months. First came the announcement that the Minister for the Environment had given his consent to the building of a major refinery on the Cliffe marshes of north Kent and had thus overruled the recommendations of the inspector he had appointed to carry out a public enquiry. A few weeks later the Secretary of State for Scotland overruled his reporter and gave his consent to the building of a major refinery at Nigg Bay on the Cromarty Firth. At both public enquiries into the applications for permission to build the refineries a whole range of conservation bodies gave evidence as to the great scientific value of the two areas, in the face of fierce opposition from the companies wishing to develop the sites; and in both cases the inspector and reporter appointed by the Ministers upheld the objections of the naturalists and recommended that the Ministers should turn down the planning applications. There are doubts as to whether either project will go ahead. The Kent County Council, after hearing additional evidence that was not tested at the public enquiry, has raised legal objections to the way that the Minister made the decision. In Scotland the Highland Regional Authority still has to give its consent.

Ornithologists will no doubt remember that, at the time of the discussions on the siting of London's third airport, the Prime Minister of the day overruled, for political reasons, the recommendations of the Roskill Commission, which had been arrived at after months of deliberation and millions of words of evidence. Political reasons, presumably based on unemployment problems, must be behind the reversal of the present recommendations, for there was no satisfactory evidence at the enquiries that refineries were needed at either site. Many lessons are to be learned from these reversals, but to naturalists the message must surely be to obtain the freehold of land of scientific importance at the earliest possible opportunity and never to trust in leases or planners.

New reserves Following the exhortation in the previous paragraph, perhaps it is appropriate to record that the Royal Society for the Protection of Birds has just announced that it has completed negotiations for the purchase of 1,517 acres (614 ha) of the northern part of the Abernethy Forest around Loch Garten. Whilst this area is the nesting site of the 'famous' Ospreys, the property also contains ancient Scots pine forests of mixed age, heather moor with moraine hillocks, birch wood, lochs, bogs and a wide variety of plants and birds. The area was in danger of being felled and used for commercial forestry. The purchase is part of the RSPB's £1,000,000 Appeal, which at the end of January 1976 totalled £501,000 in cash and covenants; this means that half the target has been reached in nine months. The RSPB also announced that it has obtained leases on Radipole Lake in Weymouth, Dorset, Ynys Venrig off Anglesey in North Wales, and the Mull of Galloway in south-west Scotland.

North-east Scotland The bird report for this area for 1975 has just been published by the embryonic Aberdeen University Bird Club. The club claims to be in the early stages of formation and hopes 'to stand in company with the clubs that are so much in the tradition of English counties'. It has already produced a checklist of its area which would be of interest to those visiting the Grampians; this can be obtained (18p including postage) from the Secretary, Aberdeen University Bird Club, Zoology Department, University of Aberdeen, Tillydrone Avenue, Aberdeen AB9 2TN. This report for 1975 is clearly printed, and includes a survey of the year's ornithological activities followed by the usual systematic list; line drawings decorate the text. The list follows the British Trust for Ornithology's 'species list' with one exception: the Scottish Crossbill is upgraded to a full species. I wait to see if the rest of the scientific world follows Aberdeen.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

January reports *D. A. Christie*

These are largely unchecked reports, not authenticated records

January was a month of varying weather with temperatures generally above average. The most interesting period was the last week, when severe northerly gales on the east coast produced some unusual reports.

Off the north-east coast of England, on 3rd, single **Arctic Skuas** *Stercorarius parasiticus* were noted flying south at Hartlepool (Cleveland) and at Seaton Sluice (Northumberland), where a **Great Skua** *S. skua* also flew south. A **Sooty Shearwater** *Puffinus griseus* was seen moving north eight km off Sunderland (Tyne & Wear) on 9th. The greatest movement, however, was recorded during the gales in the last week: at Seaton Sluice three **Arctic Skuas** flew north on 24th and one on 25th, and nine **Great** moved north during the two days; and at Hartlepool on 25th northward passage involved five **Great**, two **Pomarine** *S. pomarinus* and three **Arctic**; four **Great Skuas** were also reported at Teesmouth (Cleveland) on 24th. On the last day of the month a **Manx Shearwater** *P. puffinus* and a **Great Skua** flew south at Hartlepool. Connected with this unusual sea passage were movements of **Gannets** *Sula bassana*, which will be summarised later, and several **Grey Phalaropes** *Phalaropus fulicarius*: the latter were recorded flying north at Whitburn (Tyne & Wear) and Teesmouth on 24th (two different birds), and others were seen at Goxhill (Humberside) on 29th and at Welton Waters (also Humberside) on 31st. In the south, a first-winter **Sabine's Gull** *Larus sabini* appeared at Minnis Bay (Kent) on 3rd.

An immature **Night Heron** *Nycticorax nycticorax* was reported near Reading (Berkshire) during January, and in Kent a **Glossy Ibis** *Plegadis falcinellus* which turned up at Graveney on 29th may have been the bird which was at Stodmarsh in December (*Brit. Birds*, 69: 158). A first-year drake **Green-winged Teal** *Anas crecca carolinensis* was at Drift Reservoir (Cornwall) on 3rd, and another **King Eider** *Somateria spectabilis* was found in Scotland, this time at Crombie Point in the Firth of Forth (Fife/Lothian). **Rough-legged Buzzards** *Buteo lagopus* were still few, one at Windmill Creek (Kent) on 1st and two at Walberswick (Suffolk) throughout the month. Also at Walberswick, there was a **Red Kite** *Milvus milvus* and a **Goshawk** *Accipiter gentilis*.

An unexpected sight at Chew Valley Lake (Avon) on 17th was that of a **Killdeer** *Charadrius vociferus*; and, still in the south-west, **Long-billed Dowitchers** *Limnodromus scolopaceus* were reported at Stithians Reservoir (Cornwall) through the month and on the Exe estuary (Devon) late in January. A **Temminck's Stint** *Calidris temminckii* was seen at Thorney Island (West Sussex), though we do not have details of the date.

One may speculate as to whether a **Crested Lark** *Galerida cristata* reported at Dungeness (Kent) on 24th was the same as those recorded in the same county in September and October (*Brit. Birds*, 69: 73-74). A **Woodlark** *Lullula arborea* also appeared at Dungeness on 28th and 29th. We heard of a **Black-throated Thrush** *Turdus ruficollis* near Shildon (Durham) on 28th and 29th but no supporting details have yet reached us. A bird trapped at Chew Valley Lake on 4th proved to be a **Little Bunting** *Emberiza pusilla*, and it is interesting to report that another of the same species was trapped at Nether Stowey, Bridgwater (Somerset), on 19th February. Finally, there was a **Pine Bunting** *E. leucocephala* at Golspie (Highland) on 6th and 7th, though one is tempted to believe that this was an escaped bird.



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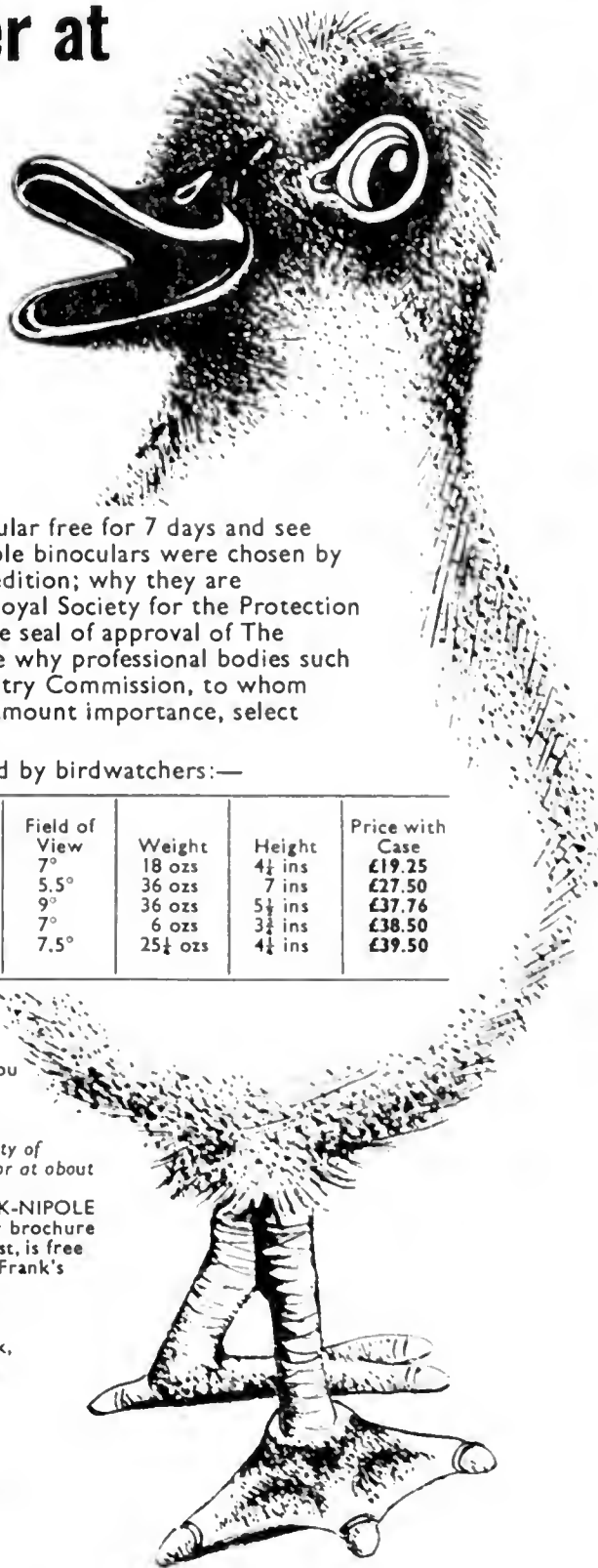
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(photo: F. A. Jones)

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British Birds

VOLUME 69 NUMBER 6 JUNE 1976



Dispersal and causes of death of Buzzards

N. Picozzi and D. Weir

INTRODUCTION

Most of the data presented in this paper were obtained during 1969-72 on a study area in Speyside (Picozzi and Weir 1974). Additional data from Speyside for 1964-68 and 1973-75 are included, and comparisons are made with an analysis of the recoveries of Buzzards *Buteo buteo* ringed elsewhere in Britain.

METHODS

Marking

Ten full-grown Buzzards caught in Speyside during 1969-72 were marked with coloured plastic jesses (which most birds soon removed) and another 14 were marked with patagial tags (Picozzi 1971). Those with a jess were also individually marked under one wing with red dye, which showed up well when the bird was overhead and lasted until the moult. Of 205 nestlings known in the study area, 90% were marked with coloured rings in 1969 and 1970, and with coloured rings and patagial tags in 1971 and 1972. In calculation of the age of ringed birds, the date on which they entered the next age class was taken as 1st June.

Causes of death

From 1964 to 1969, records of dead birds depended as much on reports by local people as on incidental collection by DW (Weir 1971). When we learned in 1969 that Buzzards were being poisoned, we used a retriever dog in regular searches for poisoned baits and for dead birds near them. Other Buzzards were certainly shot but their carcasses were seldom found.

RESULTS

Dispersal of first-year birds

Fig. 1 presents data for 1969-72 on the timing of dispersal of young from territories that were visited every month until all the young had left. Although nestlings were not ringed until they were well developed, in 1972 15% and in 1969-71 29% to 38% were neither

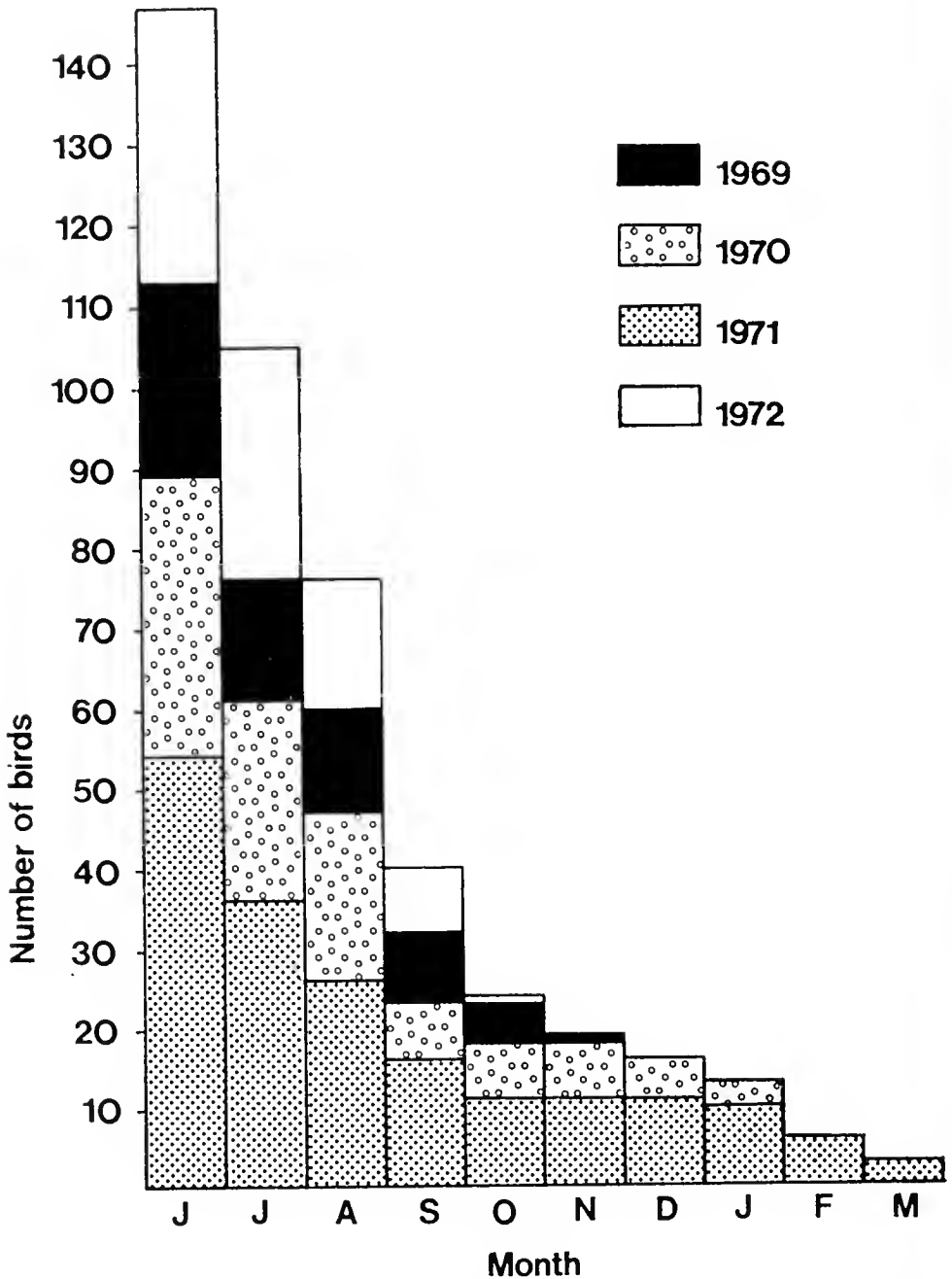


Fig. 1. Number of juvenile Buzzards *Buteo buteo* present each month from June until all had dispersed on nine, 15, 21 and twelve natal territories in Speyside, in 1969-72 respectively

seen subsequently as fledged young in July nor found dead; they presumably died soon after ringing. The rate of dispersal of young from natal territories (i.e. the territory on which they were hatched) was similar in each month from July to October. By 1st November 84% had left, and all had done so by the start of laying in the following breeding season. Two or more fledged young were present in July on 40 of the territories; brood dispersal was gradual on 19 and rapid (all young left within the same month) on the remainder. There were no significant differences between years in this respect, but the 1971 year class took longer to disperse than the others (fig. 1) and the broods of that year tended to disperse more gradually than those of other years. Twenty-two (15%) of the 148 young in this sample were reported elsewhere in their first winter, twelve alive and ten dead. Only five more were identified subsequently: two alive and two dead on the study area, and one dead elsewhere.

Table 1. Observations of four young Buzzards *Buteo buteo* seen in more than one locality after leaving their natal territories in Speyside

Distances are in kilometres from the natal territory

Bird	Last seen on natal territory	Date	Distance & direction	SUBSEQUENT OBSERVATIONS				Fate
				Date	Distance & direction	Date	Distance & direction	
	2 Nov 1970	3 Nov 1970	3 NW	13-20 Nov 1970	11 SW	8 Dec 1970	4 NW	Shot
	Unknown	10 Sep 1971	13 SW	19 Nov 1971	20 SW	25 Mar 1972	95 SSE	Found dead
	Unknown	15 Sep 1971	8 SW	27 Oct- 6 Dec 1971	7 WSW	—	—	Unknown
	About 1 Sep 1971	21 Sep 1971	1 SW	22 Oct 1971	5 SW	—	—	Unknown

We were able to follow in detail the dispersal of four individuals that were identified in more than one locality in their first winter (table 1). These observations indicate that not all birds left the valley immediately and that dispersal sometimes entailed a period of local wandering. Of 17 birds colour-marked as nestlings which occupied a nesting territory by 1975, at least two did not leave the study area as they were seen periodically on ranges adjacent to the nesting territories which they eventually occupied. The ages at which the 17 birds first occupied territories were: first-year (one), second-year (13) and third-year (three).

During 1969-72, nine unringed first-winter birds, presumably immigrants, defended small winter ranges. We saw eleven, apparently resident, unpaired birds in summer over the three breeding seasons 1970-72; ten, of which four were ringed, were in their first year and one was an unringed adult. There was strong circumstantial evidence that four first-year males of local origin were also present in summer.

Table 2. Sightings of transient Buzzards *Buteo buteo* in Speyside from 16th August 1971 to 16th April 1972

Month	No. of observation days	No. of days transients seen	No. of transients seen	First-year	AGE Adult	Un-known	No. of transients per observation day
Aug (2nd half)	6	0	0	0	0	0	0.00
Sep	18	8	18	9	3	6	1.00
Oct	8	3	6	5	0	1	0.75
Nov	8	3	3	1	1	1	0.38
Dec	13	2	2	1	1	0	0.15
Jan	7	1	1	0	1	0	0.14
Feb	15	2	3	3	0	0	0.20
Mar	16	7	10	0	4	6	0.63
Apr (1st half)	8	2	5	3	2	0	0.63
TOTALS	99	28	48	22	12	14	—

Table 2 summarises sightings between 16th August 1971 and 16th April 1972 of Buzzards which were neither members of resident pairs nor dependent young on natal territories. We called these birds transients. Most were seen in September-October and in March-April. The autumn period coincided with the dispersal of young from natal territories and is reflected in the ratio of first-year birds to adults: of the 24 birds seen then, 14 (four ringed) were in their first year, three (one ringed) were adult and seven were not aged. In the spring period three (two ringed) were in their first year, six were unmarked adults and six were not aged. These figures indicate a decrease in the proportion of first-year birds between autumn and spring.

Distance and direction of dispersal

Table 3 shows the distance from their natal territories at which 25 Speyside Buzzards and 112 Buzzards ringed elsewhere in

Table 3. Number and proportion of first-year and adult Buzzards *Buteo buteo* ringed as nestlings in Speyside and elsewhere in Britain which were found dead 1-50 km, 51-100 km and more than 100 km from their natal territories

	1-50 km				51-100 km				> 100 km			
	FIRST-YEAR		ADULT		FIRST-YEAR		ADULT		FIRST-YEAR		ADULT	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Speyside	11	65	6	35	4	80	1	20	3	100	0	0
Britain	59	69	26	31	12	63	7	37	8	100	0	0
TOTALS	70	69	32	31	16	67	8	33	11	100	0	0

Britain were reported dead. Of the total of 137, 102 (74%) were recovered less than 50 km from their natal territories. More young birds were recovered than adults but, while the proportions of first-year and adult birds found between 1 and 50 km and 51 and 100 km were similar, only first-year birds (a total of eleven) were recorded more than 100 km away.

Adult Buzzards first attempt to displace members of existing pairs in late summer or autumn (Weir and Picozzi 1975), mainly from an age of 14 months. Thirty-seven British-ringed birds found dead (including seven from Speyside) were in this age group; all were within 90 km of their natal territories and 50% (including four birds from Speyside) were within 19.5 km.

Most birds recovered more than 20 km from their natal territories in northern Britain had apparently moved towards lower ground near the coast or to inland valleys (fig. 2). This is not necessarily a complete picture of Buzzard dispersal as movements to more remote areas, particularly to the west of our study area, were less likely to have been detected.

Causes of death

From 1964 to 1972, 52 Buzzards were found dead within 20 km of the study area. The cause of death was known for all but five: 28 (54%) were poisoned and eight (15%) were shot or trapped (table 4). Of the 42 birds aged, 27 (64%) were in their first year. Fourteen birds ringed as nestlings on the study area were recovered more than 20 km away; eleven (79%) were reported as 'found dead', none as poisoned. The main reported causes of death elsewhere in Britain (table 4) were shooting and trapping (21%),

Table 4. Causes of death of Buzzards *Buteo buteo* [a] found less than 20 km from the Speyside study area, [b] ringed in Speyside but found more than 20 km away, and [c] ringed in the rest of Britain

*Includes 41 unringed birds

Cause	Found dead in Speyside < 20 km from study area (total 52*)	FROM RINGING RECOVERIES	
		Speyside origin, > 20 km from study area (total 14)	Elsewhere in Britain (total 112)
	Proportion (%)	Proportion (%)	Proportion (%)
Poison	54	0	0
Shooting or trapping	15	7	21
Accident or injury	12	14	13
Other	10	0	0
Unknown	10	79	66

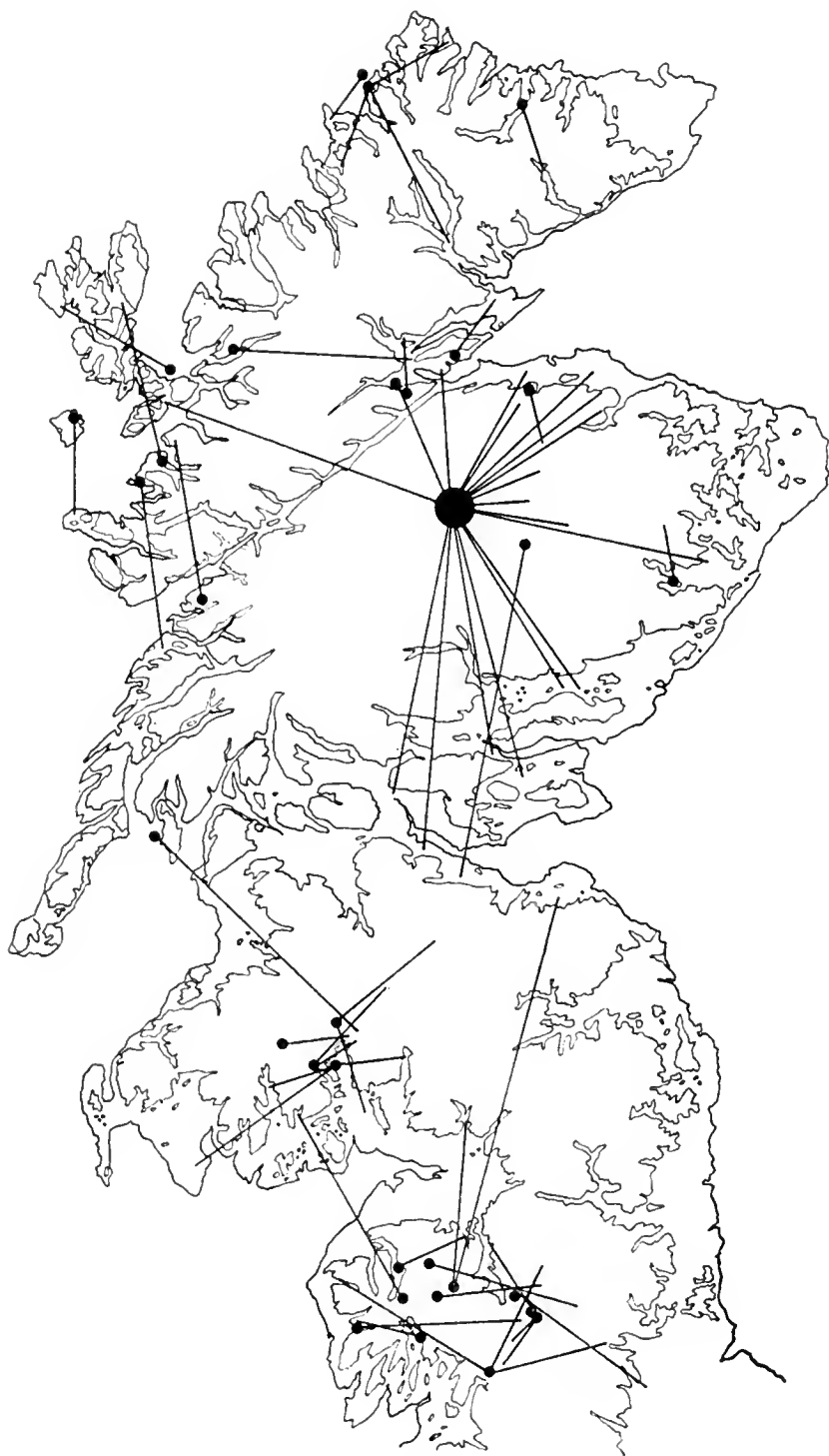


Fig. 2. Recoveries and sightings more than 20 km from the ringing site of 57 Buzzards *Buteo buteo* in northern Britain in relation to the 120-metre (400-ft) contour. The large dot represents Speyside, the small dots other ringing sites

similar to the 15% in Speyside, but the high proportion of birds simply 'found dead' (66%) makes further comparison with Speyside speculative. The general similarity between this figure and the 54% known poisoned and 10% 'found dead' in Speyside may indicate that poisoning has been overlooked as an important cause of Buzzard mortality elsewhere in Britain. Although many British ringing recoveries antedate the widespread use of modern poisons, strychnine and rodine have been used to kill predators throughout the period covered by the ringing recoveries. It is therefore the more surprising that ringed Buzzards have not previously been reported as certainly poisoned.

Olsson's (1958) analysis of Swedish Buzzard recoveries showed that 42% of the 473 birds recovered had been shot and that a further 20% of deaths could also be attributed directly to man. None was reported poisoned, but 22% died of unknown causes. The 62% mortality directly due to man is similar to the 69% (poisoning, shooting and trapping) recorded in Speyside.

DISCUSSION

The timing of the dispersal of Speyside young was similar to that described by Dare (1961) for Devon and Tubbs (1974) for the New Forest. Mead's (1973) analysis of the dispersal of Buzzards ringed in Britain showed that in the breeding season (April-July) adults were recovered closer to their natal areas than first-summer birds, and our analysis of the ringing returns indicates that birds old enough to occupy a nesting territory may be relatively sedentary. Observations in Speyside showed that 17 locally reared birds eventually occupied nesting territories on the study area, and that two had remained in Speyside since fledging. Marked birds, too distant to identify individually, were seen occasionally during the year and may have included birds which later occupied territories. However, we are uncertain whether these birds had left and subsequently returned to the study area or had remained inconspicuously within or close to it, although the latter possibility seems the more likely.

The majority of Buzzards found dead in northern Britain more than 20 km from their natal territories were recovered on generally lower-lying arable land that was not only likely to offer more food (Picozzi and Weir 1974) but also included areas more intensively managed for Pheasant *Phasianus colchicus* and Partridge *Perdix perdix* shooting. Buzzards were more likely to be killed in such areas.

Information on the killing of raptors in Britain at the present time is rarely published because reports are often anecdotal (see Bijleveld 1974 for the most recent review of the European literature). Nevertheless, it is worth quoting information from reliable

sources in north-east Scotland as this suggests the scale of killing there in recent years. Our detailed information refers only to 1968. On two estates of 600 ha and 800 ha in north-east Scotland, gamekeepers admitted killing 75 and 84 Buzzards respectively; most were shot in early autumn during the main period of dispersal. On the edge of our study area, we were told of 24 and 40 birds killed on two other estates. Thus, a total of 223 Buzzards was killed in one year on four estates. Between 1968 and 1971, we found that alpha-chloralose and mevinphos were used on baits on twelve of 15 estates within 30 km of the study area. On four of these estates, in 1969-72, we found 28 dead Buzzards by baits which, we were told, had been poisoned with alpha-chloralose. From 1966 to 1969, before poisoning started, we found six adult pairs each spring on two of these estates, with 2.3 pairs on average producing fledged young annually. After poisoning started there were only four pairs, with 0.5 pairs on average producing fledged young annually.

If the persecution described here is typical of other places, there can be little doubt that it will be slowing or preventing recolonisation of suitable range from which the Buzzard was eliminated last century (*cf* Moore 1957).

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It is a pleasure to acknowledge the help and encouragement of Dr D. Jenkins, Dr. C. J. Cadbury and Dr I. Newton throughout the project and to thank them for their comments on this paper in draft. We are also most obliged to the British Trust for Ornithology for permission to analyse the British ringing recoveries, and to several people for information on Buzzard mortality in north-east Scotland. DW was a member of the research staff of the Royal Society for the Protection of Birds during this study.

SUMMARY

Eighty-four per cent of young Buzzards *Buteo buteo* left their natal territories in Speyside by 1st November, and all had left by the following nesting season. Seventy-four per cent of all British-ringed Buzzards found dead were within 50 km of their natal territories; and 50% of birds more than 14 months old, and so potentially capable of occupying a nesting territory, were within 19.5 km of their natal territories. Ringing recoveries from northern Britain suggest that most dispersal of more than 20 km is towards mainly lower-lying arable land, but birds in more remote, higher areas may be overlooked. Many Buzzards die from shooting and poisoning.

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Sound recording and the birdwatcher

P. J. Sellar

INTRODUCTION

Since the previous review of bird sound recording in this journal (Simms and Wade 1953) a vast amount of progress has been achieved both in the field and in the laboratory. Indeed, so many discs and cassettes have been published that some would-be recordists on the brink of taking up the pursuit are deterred by the feeling that most of the work has already been done, with all the species including the rarities recorded, and that there is nothing left to do—at least nothing readily accessible. They imagine that the domain of bird sound study is now the laboratory and the sound-proofed box.

In reality the majority of recordings available for scientific study today leave much to be desired in terms of accurate and detailed documentation. After all, most published recordings have been made to satisfy an aesthetic desire to achieve a pleasing result for the listener. The real paucity of well-documented recordings of, for example, courtship and alarm calls has only recently come to light during the preparation of the voice section in the forthcoming *The Birds of the Western Palearctic*. In some cases the sex (and even the species) has been wrongly identified, and only rarely is information available on the bird's behaviour. Particular difficulty has been found in matching recordings with descriptions in the literature of vocal activity in courtship display. Behaviour specialists seldom turn out to be sound recordists. The aim of this review is to set this matter right and to indicate the opportunities which lie in wait for the field ornithologist with only modest equipment and no recording experience at his command: awaiting his first recording efforts there is a great deal of stimulating work no farther away than his own back garden, opportunism being regarded as the primary requisite, quality of recording as of secondary importance. A new approach is needed, culminating in the scientifically documented recording for which the birdwatcher has to assume a dual role as observer/recordist.

This sounds dull expressed in so many words but those I know who have taken up sound recording with this approach all confirm that, far from proving a distraction, it has brought new life to the art of basic birdwatching. Many aspects of behaviour which have previously escaped one's attention quite suddenly assume fresh interest. In sound recording there is often a need to lie in wait, to stand still for a while, and this can never be a bad thing in field ornithology.

OPPORTUNITIES FOR INVESTIGATION

In suggesting possible subjects for investigation let us consider those most urgently in need of attention. They conveniently divide between two kinds of activity: the permanent set-up in the garden and the opportunist work in the field. In terms of worthwhile return on time and energy expended, the garden wins hands down. Getting to know the vocal repertoire and associated behaviour of a few common species can have one totally absorbed to the exclusion of all other activities. The vocabulary of the Chaffinch *Fringilla coelebs* has been extensively studied by Marler (1956) and his recordings have been deposited in the Library of Natural Sounds at Cornell. The process of song learning in the same species has been studied by Thorpe (1958), and all the recordings he made during this intensive study are now available for further research at the British Library of Wildlife Sounds (BLOWS). The House Sparrow *Passer domesticus* has been treated by Summers-Smith (1955) but a collection of sound recordings to complement his work would be a really worthwhile assignment. There has been remarkably little published study, bio-acoustically speaking, of the Song Thrush *Turdus philomelos*, the Dunnock *Prunella modularis* or, indeed, the Robin *Erithacus rubecula*.

With the help of colour-ringing there is plenty of scope for studying the inheritance or learning of song phrases. A distinctive Blackbird *T. merula* song may be in use one year. To what extent has the same bird continued it the following year? Or has the original Blackbird given way to a younger bird making an attempt at keeping the motif intact? If so, then is the young bird one of the offspring or from a neighbouring family? On October mornings the Chaffinch may be heard to indulge in a great deal of 'pinking', and occasionally this will develop into a stuttering, incomplete song. The recording and study of sub-song is still very much in its infancy (see Thorpe and Pilcher 1958). Here again sound libraries have little to offer and it is up to our new breed of recordist to break new ground and contribute much-needed material.

A great deal remains to be learnt from a study of the variation in song with season of the year, time of day, and temperature. Although variation in terms of frequency and length of song period has been worked out for a few species, there remains the question whether the composition of the song itself is influenced. It is this kind of qualitative analysis that presents a fertile field of activity for the recordist. We know that long, high-pitched notes are used by many garden species when an aerial predator is around. This kind of sound is particularly difficult to locate, whilst the harsh 'chack, chack' of a Blackbird mobbing a Tawny Owl *Strix aluco* is very easily located and all the small birds soon home in and join

in the fun. But this is only a very broad distinction and many thin 'seep' notes are used in circumstances other than alarm. In the winter of 1974/75 a Great Tit *Parus major* in my garden at Purley, Surrey, showed what appears to be a clever piece of deception. It would arrive at the bird table only to find it crowded with House Sparrows, Blue Tits *Parus caeruleus* and Starlings *Sturnus vulgaris*, and with barely a foothold available; not dismayed, it called the thin 'seep' alarm note and all the birds quickly dived for cover, leaving it in sole charge. This became almost a ritual, the other birds always responding in just the way it wanted. The longer one works a small habitat regularly and thoroughly the more one comes up against embarrassingly fundamental questions which require an answer.

Turning to the opportunities awaiting the travelling recordist, here too the possibilities are many and wide-ranging. Regional variations in song and calls is a subject which still holds many unsolved problems. Twenty-six species of passerines have been proved to demonstrate calls which descend in pitch progressively the farther south they are found in their range (see Chappuis 1969). Thus, the Blackbird's pre-roosting call is noticeably deeper in Morocco than in northern France, and a cline of progressively deepening calls can be shown for intermediate areas. Chappuis attributed a survival advantage to this in that deeper calls carry farther in the larger territories which have to be maintained in the less crowded habitats of Spain and North Africa. But do deeper calls carry farther and is there any evidence of pitch variation with change in environment elsewhere? The northern, nominate, race of the Bullfinch *Pyrrhula pyrrhula* presumably occupies large territories in the vast forest areas of Scandinavia and certainly has a deeper call than his counterpart in the south.

If we take, for example, the Song Thrush, is there sufficient evidence to support the contention sometimes held that repetition in its song is more prevalent where its breeding population is dense? With so many birds singing in close proximity is repetition of value in avoiding errors in location? There is a recording in BLOWS of a Song Thrush singing in a remote part of Lapland which was apparently the sole representative of its species for many kilometres around. It sings for a quarter of an hour with few repeats. But what is the good of only one example? Much more recording effort is needed to lend credence to this theory. The Redwing *T. iliacus* is also interesting because, quite unlike its close relative the Song Thrush, it displays a very remarkable variation in song pattern throughout its breeding range. So the traveller in northern latitudes, particularly if he wanders in an easterly direction through north Sweden into Finland, will find changes so abrupt that visual con-

firmation of the species is sometimes called for. What happens at the boundary of a particular song area? Is there an overlap territory where two different songs can be heard? Does one song pattern persist in the same area year after year? Redwing song in Iceland also varies with locality, but is there a general characteristic to be found in all the Icelandic songs which distinguishes that population from Scandinavian stock? If so, how are our Scottish birds singing?

Many field ornithologists undertake expeditions each year to study species that are difficult of access in their breeding habitats. Whether these journeys be to the deserts of North Africa or to the mountains of Teheran there are species to be found for which no sound recording yet exists, or so little as to amount to nothing of scientific value. In the appendix on page 215 are listed those species for which recordings of any kind are required within the next two years for *The Birds of the Western Palearctic*; recordings on cassette are quite acceptable, if not for making sonograms at least for just listening to. It must be emphasised that, in the absence of any tape recordings at all, reliance has to be placed on voice descriptions found in earlier texts (in the days before the portable tape recorder, memories played some curious tricks). Recording specifically for the sonogram demands rather greater care than usual in that a single example of a species should be recorded in isolation, without overlap from other birds nearby. Noise made by wind and water, even by aircraft, can often be painted out on the diagram but other bird noises are too inextricably bound up with the main subject. An obvious example of this can be seen in the difficulty in recording at a heronry, though it is, however, usually possible to record a few brief spells with only one bird calling.

All recordings for *The Birds of the Western Palearctic* should be submitted to the British Library of Wildlife Sounds, 29 Exhibition Road, London SW7. Anyone contemplating an expedition where serious recording activity is planned should contact BLOWS beforehand. Help may be forthcoming in various ways, including the supply of data sheets and possibly a quantity of tape.

Another organisation which encourages and co-ordinates new sound recording work in the field is the International Bio-acoustics Council (IBAC) based at the University of Aarhus, Denmark, under the direction of Dr Poul Bondesen. Founded in 1968, its main function is to keep in touch with research workers throughout the world and to maintain an ability to tell anyone who is doing what, in bio-acoustic parlance at least. For anyone starting out on a new line of research there is always the danger, or good fortune depending on how one views the matter, that someone else is following exactly the same line. The quarterly journal *Biophon* is intended partly as a platform for airing tentative new lines of research and

partly as a general news medium; and conferences held every other year in different countries are also mainly for informal exchange of ideas and reading of short and sometimes avant-garde papers. The only prerequisite for membership is enthusiasm for the subject, no subscription being required, at least for the time being. Dr Bondesen may be contacted at the Natural History Museum, Universitetsparken, Aarhus 8000 C, Denmark.

Here in Britain the Wildlife Sound Recording Society is helpful in many practical ways, giving advice on technique and equipment through its informative journal *Wildlife Sound*. Regular field meetings are held. It may be contacted through BLOWS (see above).

EQUIPMENT AND RECOMMENDATIONS

I feel at this stage that further exhortations should be withheld until all idea of tape-recording in the field as a burdensome tax of one's physique is dismissed. The opportunist equips himself with a set of comparatively simple and inexpensive tools for the job—a small battery-operated tape recorder, a reasonable microphone and a glassfibre parabolic reflector. The recorder should be the smallest and cheapest available consistent with the following attributes, which are necessary for use in the field. There must be provision for monitoring the recording by plugging in a lightweight stethophone or ear-phones. It is an advantage to have a remote control facility for the tape transport independent of the amplifier; this should not be in the form of a switch on the microphone, which proves too noisy in operation, but on a separate lead and switch. It is useful to have a machine with a good volume on playback as there are occasions when, for example, the presence or absence of a species can be readily ascertained by playing its song or call in the field. The controls should be easy to operate by feel alone. Rather obviously, the recorder has to be robust and supplied with a stout case. Finally, the choice should fall on a well-known make for which there are adequate spares and service backing. Perhaps less obviously, there are one or two features which are best omitted. One, which is all too common nowadays, is the automatic volume control. Its action tends to boost any background noise between spells of bird song, and though it is only doing its job the result is thoroughly unpleasant to listen to. There has, therefore, to be provision for manual control whereby the automatic circuit is eliminated. This implies that there should also be a means of indicating the level of incoming sound so that the control can be set to avoid overloading the tape. Normally this is catered for by a small meter which serves the dual function of checking both sound level and battery condition. Another sophistication to be avoided is any

form of so-called noise-limiting device. These work well for music but have proved a disadvantage in field recording.

With light weight and compact size both vital ingredients for the opportunist recorder, one naturally tends to favour the cassette machine rather than the traditional reel-to-reel design. Despite the low tape speed (all cassette recorders run at only 4.76 cm/sec), the quality from a good design properly used is acceptable for most scientific needs. The trouble is that, with the present enthusiasm on the part of most manufacturers for automatic volume control, the choice is somewhat limited. It may be helpful therefore to mention a few examples that have come to my notice and appear to fulfil most of the requirements mentioned above. It should be realised, however, that the current period is one of rapid development in cassette recorders and models are constantly being withdrawn and replaced by new designs.

The ITT Studio 60 M, retailing at £58 including carrying case, weighs 2.4 kg with batteries and may be used with the new Chromium Dioxide tape, which has a better performance at high frequencies. The Sony TC 92 is slightly lighter and more compact but is sold without a case and costs £11 more. Two other models which are known to perform well but which are slightly heavier and larger are the BASF 9202 and the Philips N.2225, retailing at £75 and £81 respectively. There is a stereo model, the ITT Studio 73, weighing 3.2 kg and costing £80 including carrying case. For those who, understandably, wince at the thought of four recording tracks being accommodated within the tiny width of a cassette tape I have a few words in support of stereo later in this review. Finally, for those who can afford the ultimate in quality and yet also the smallest in size there is the Nagra model SN, at £1,026 (fig. 1).

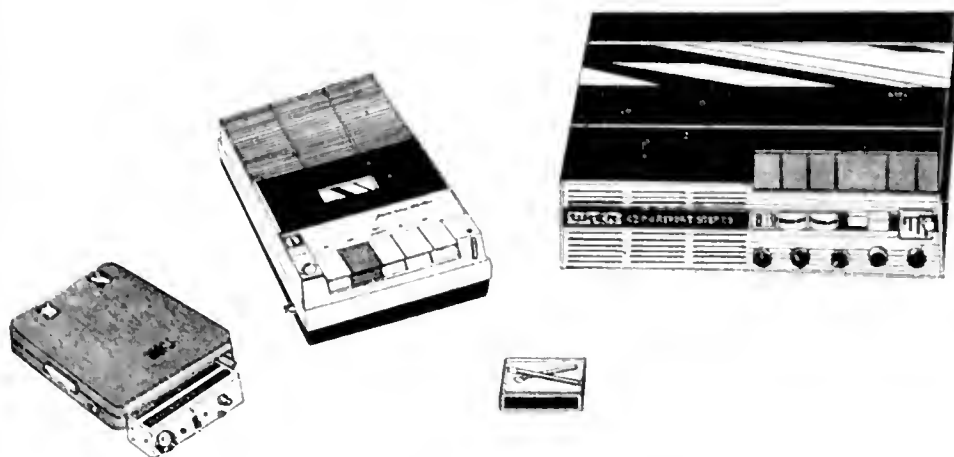


Fig. 1. Three tape recorders, compared in size with a matchbox. Left to right, Nagra SN, Bush TP 60 cassette, and Uher 4200 Report Stereo (drawing by Annie Michael from photo by P. J. Sellar)

Weighing under 0.7 kg and easily slipping into a shirt pocket, this is a reel-to-reel design using cassette-sized tape full track and running at 9.5 cm/sec. Curiously, even Nagra are smitten with the craze for automatic volume control and this tiny masterpiece has to be used with an accessory which overcomes this problem. All the prices quoted include 25% value added tax.

Turning to the choice of a microphone, one may be tempted to assume that the one supplied with the recorder should be adequate. Unfortunately this is often not the case as they are usually of the indoor type and very prone to wind noise if used in exposed situations out in the field. A good quality moving-coil or 'dynamic' microphone is the best choice for field work. Another, and generally more costly, design is dependent on the movement of condenser plates but trouble has been experienced with some of these models giving rise to crackle when damp. A third basic design is the ribbon microphone: although capable of high quality results, it is not suitable for outdoors, being abnormally susceptible to wind noise. It matters little whether the directional response is omni- or cardioid. The latter implies a preference for sound coming from the front with less sensitivity to sounds coming from the sides or rear. A microphone of this type does have an advantage when recording at a known song perch. One important point to check, whichever model is chosen, is the electrical impedance. This must match the input to the recorder but should not exceed 600 ohms as, otherwise, there will be a distinct loss of sensitivity when long cables are used.

Grampian Reproducers Ltd, of Feltham, London, market a range of omni-directional dynamic microphones costing between £12 and £15 which have proved themselves in the field. There are a number of rugged designs at around £30 yielding high quality results: of these, the Calrec CM 450, the Sennheiser MD 21 and the Beyer M 69 I know well and can recommend. The last mentioned has a fairly directional response.

Microphones should be handled with reasonable care and it is particularly important that they are not left out for long in wet weather without at least some protection from direct rain. Finally, moving-coil microphones should never be allowed to come into contact with tape as there is a risk that the strong magnet may cause erasure of recordings.

For the opportunist a parabolic reflector is essential, yielding as it does something in the order of 15 times magnification of sound. So many interesting calls associated with courtship or alarm present themselves in the field with little or no warning and a recording has to be made on the spot. Most reflectors are now made in glass-fibre as this makes for quietness in handling and light weight.

Grampian Reproducers Ltd still market their 24-inch (0.6-metre) model in spun aluminium, and this is much improved by the application of a layer of polythene foam on the back. Membership of the Wildlife Sound Recording Society brings one into contact with a number of enthusiasts who make their own reflectors and can

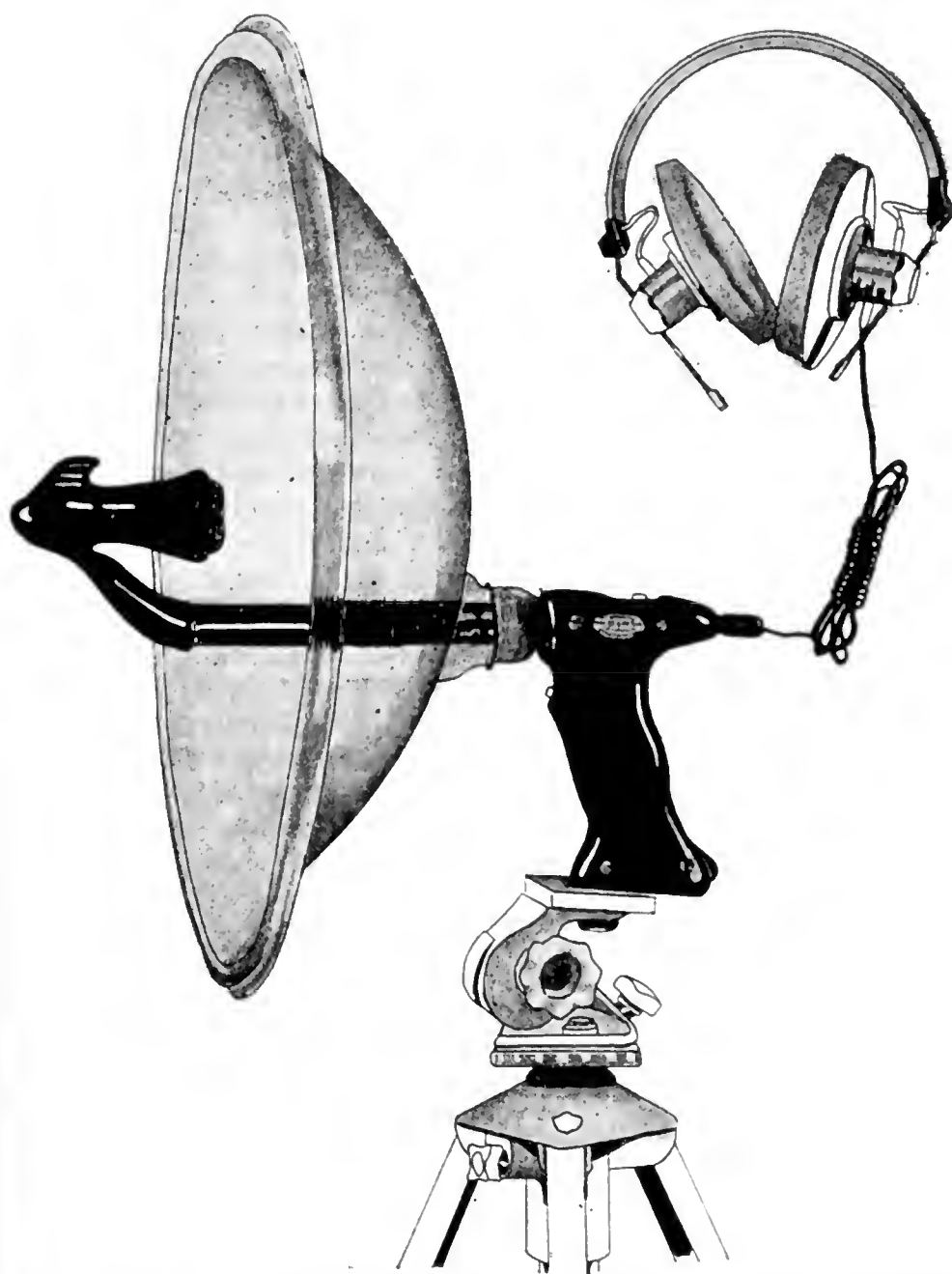


Fig. 2. The Dan Gibson parabolic reflector with transparent bowl. A compensating amplifier is built into the handle (drawing by Annie Michael from photo by P. J. Sellar)

generally be persuaded to make one to order. The cost of reflectors varies from £8 to £15. In theory a reflector is incapable of concentrating any sound of a wavelength exceeding its diameter. The diameter required for the Bittern *Botaurus stellaris* would be at least 1.5 metres, however, and hopelessly unwieldy. A minimum of 0.5 metres is commended, slightly larger being ideal.

The reflector's inability to respond equally to a wide range of frequencies is a point to be borne in mind with some species, although in practice this does not seem to have a noticeable effect on the shape of a sonogram made from such a recording. The difficulty in observing one's subject will make a more immediate impression on the user in the field. It helps, therefore, to have a peep-hole and fore-sight, both of which are available on the Gram-pian model. A more novel approach to these problems is seen in the Dan Gibson transparent reflector (fig. 2). The handle incorporates an amplifier specially designed to compensate for lack of bass response, and a microphone is built into the fore-sight. Unfortunately this model costs £125. The ease with which handling noises are transmitted to the microphone is a point to watch. To combat this tendency it often helps a great deal to wrap a generous swathe of chamois leather round the handle.

Use in the field

The complete sound recording kit must be sufficiently compact and lightweight so that one is never deterred from taking it into the field even on the most casual outing. Carrying everything slung over the shoulder is tiring after quite a short spell so it is a better plan to stow the recorder in a rucksack and have the reflector conveniently slung over the top, at the same time keeping off the rain. The microphone should be permanently fixed in its holder within the cup of the reflector, but it does make for easier carrying if this fixing can be either semi-retractable or folding. Only a quick adjustment should then be needed to reinstate the microphone in its precise recording position, that is at the focal point of the parabola. In this state of semi-readiness the wiring from the microphone and the monitoring head-set should be permanently plugged into the recorder. The head-set can be conveniently stowed in a jacket pocket. The whole may be put into action very quickly after removal of the rucksack.

An arrangement conferring the advantage of a greater degree of readiness is to keep the recorder amplifier switched on while still in the rucksack but to have the tape transport remote-controlled by an on/off switch. The reflector should now be shoulder-slung. In order not to run down the recorder battery too quickly, this procedure should be confined to periods of anticipated high activity

on arrival at a promising area. With the recorder still in the sack there is the problem of setting the gain control, though with experience one soon learns to adopt a setting which will cope with most situations. At least one is able to record at a moment's notice. With something on the tape it may always prove possible to make adjustments at a later stage in the recording sessions.

Use in the garden

Foresaking the field for the armchair, let us take a look at what may be done at home—the permanent set-up in the garden. Having regard to electrical input impedance limits mentioned earlier, the recorder may be connected to long microphone cables run out to selected fixed points out of doors, the control position being retained in a room frequently occupied and having a commanding view of the garden. The microphones are strategically placed in promising situations, such as close to feeding tables, nest boxes, song perches or food specially laid out as a lure. They should be sheltered from direct rain and wind but kept well clear of foliage or grass, which may rustle and spoil a recording. Although not essential, it is an advantage to have a mixer unit accepting, say, four inputs from microphones in the garden and one output connected to the recorder.

In listing the desirable attributes of a simple cassette recorder no mention was made of the choice between mono and stereo. Whilst one cannot pretend that the added realism of a stereo recording greatly enhances its scientific value there is the advantage of having two input channels available. Thus the second input of a stereo recorder can be put to great effect in simultaneous note-taking. Nowhere is this more useful than in the garden layout, for all the microphones are out in the field and there is therefore no ready means of documentation. A hand microphone and a second channel enable one to describe exactly what is happening simultaneously with the bird's vocalisation. This procedure adds very considerable value to the recording from a scientific standpoint.

NOTE-TAKING

The reader will have gathered that in this kind of field, accurate and spontaneous documentation is of the very essence. One must at the same time be fully aware of dangerous pitfalls, and these are precisely those which bedevil ordinary field notes, only the temptation seems stronger. It is all too easy to draw premature conclusions in interpreting motivation. The very inflexion of a call note may suggest aggression when in fact quite another mood may prevail. It is surprising how reluctant people are to commit their own voice to tape, but it is better to err on the side of saying too much than

too little. The same goes for recording the bird; too often beginners record in short snatches, missing the really interesting call with behavioural significance. The shortcomings in the scientific approach of many recordists should prove much less of a hurdle to the practised field ornithologist, and this is just why it is important that he takes up this activity. It will benefit his own field work as well as provide much needed fresh material for bio-acoustic research.

THE VALUE OF RECORDINGS

That last sounds a somewhat glib statement but, in fact, one of the pleasures to be enjoyed in what we should now call scientific sound recording is the satisfaction of knowing that, even if only an occasional participant, one can contribute usefully. A complete beginner can make an isolated recording which, if properly documented, filed and indexed, may at some future time turn out to have quite unsuspected significance. For example, I placed my microphone late one night in 1968 at the entrance to the burrow of a Leach's Petrel *Oceanodroma leucorhoa* and let the recorder run for about ten minutes before moving on. Many months elapsed before I realised that here was the first recorded evidence that male and female churr together at the nest. Many more months passed before I found that here, too, was an example of antiphonal song, in which one partner's churr would always be interrupted each time the other broke into the 'flight' call. Yet more information was wrung from the recording quite recently when the speed of the first bird's reaction to the other's 'flight' call was found to be 50 milliseconds, which is indicative of the species' aural response time. This ability to discern exceedingly short time intervals is the only respect in which a bird's hearing equipment differs considerably from our own. All this, it must be emphasised, could equally well have been elucidated had the recording been quite mediocre and made on a simple cassette machine.

SOUND LIBRARIES

The chances of any such recording contributing to bio-acoustic research are greatly enhanced if a documented copy is lodged with a sound library. The value to future research of, say, five thousand recordings in a well-organised sound library is far greater than it would be if the same number was languishing in individual collections. They can be filed in an orderly fashion and listed in regularly up-dated catalogues. Such a pooling of material makes any study of geographical, individual or temporal variation in song a much more viable project. Hitherto the lone researcher has had to rely on recordings cajoled from recordist friends; now he has access to a wide range of material all carefully stored on species

reels, every recording documented to at least a minimum standard. The natural history sound library movement has been slow to start but is now gathering pace. For a long time the only one of any size was the Library of Natural Sounds at the Laboratory of Ornithology, Cornell, Ithaca, New York. This was founded by Dr A. A. Allen and Dr P. P. Kellogg in the 1930's. The first in Britain was the BBC Sound Archive, which by 1973 contained 3,199 separate recordings or 'cuts' of 729 species of birds. BLOWS was opened in 1969 as part of the British Institute of Recorded Sound. It houses not only a complete copy of the BBC Sound Archive but a large collection of commercial discs of wildlife sound. The BBC naturally tends to foster recordings which will lend atmosphere to a television or radio programme, whereas the material on tape from individual recordists can be more easily suited to the requirements of scientific study. In this respect the library plays an active role in encouraging recordists to fill gaps in the collection of complete vocabularies of certain species. It has recently lent support to a number of expeditions in return for copies of recordings fully documented in line with a standard procedure.

Depositing recordings

What is involved in preparing a recording for submission to a library? If, as is quite likely, our newly converted field ornithologist has but one humble cassette recorder, how does he set about making copies and editing all the wind and aircraft noise out of his tape? In this case the library will be found quite willing to accept original cassettes and do all the editing and copying on the premises. It would, as a second step in one's progress, be a great advantage to acquire, for example, a second-hand mains recorder of the reel-to-reel type to which one could transfer recordings directly from the field machine. Editing on the open reels is then a simple matter. Such a machine can also serve duty as the in-house recorder for the garden set-up. Perhaps most rewarding is the ability to replay one's recordings with the quality they deserve. Oldish but thoroughly reliable Ferrographs or Vortexions generally prove an excellent buy for around £50.

The BLOWS library has now standardised a system of documentation using a specially designed data sheet to be completed for each separate recording. The least that is asked for is the name of the species, the locality and date of the recording and the recordist's name and address. The recording itself should be introduced by a dictated announcement on the tape, again giving the name of the species, the name of the recordist and the serial number of the data sheet. Thus, every recording is positively linked to its data sheet and no confusion can ever arise. The recording has now

become a scientific specimen in the same manner as a bird skin with its label in a museum; it is there for posterity.

COPYRIGHTS AND REWARDS FOR THE RECORDIST

It is all very well extolling the virtues of depositing copy recordings and amassing a wealth of material under one roof for the benefit of research, but what is in it for the individual recordist? He is the one who seems to have to do all the hard work and gets nothing in return. Does he even place himself at some disadvantage? Sound libraries generally operate a scheme to protect the contributor against commercial or unauthorised use of his recordings. At the same time any copyright remains with the recordist who is left free to put his material to any future commercial use if he wishes. Copies of recordings are issued only to bona-fide research workers, who are obliged to acknowledge the recordist in any published work featuring his material, whether this is simply referred to in the text or directly represented by a sonogram. If a commercial request for a recording arises, the library will put the enquirer in direct touch with appropriate recordists who may then negotiate terms. In many ways, then, the library acts as a focal point between recordists in the field and various kinds of user. It is a two-way operation for there are cases when the library will commission recordings of a particular species or promote a complete programme of work in the field. The individual recordist thus has a ready means of making a direct contribution and therein lies the satisfaction. There is the consideration, too, that the library provides a safe repository for copies of all his best recordings. Ideally the library, or at least the present network of a dozen or so national wildlife sound libraries throughout the world (see Boswall 1974), should aim to collect every sound of biological significance, including geographical, temporal and individual variations, of all species of wildlife. That ideal will, of course, never be fully realised, but I hope I have shown that the appetite for material, far from being satisfied with all that has been achieved already, is greater than ever before. In fact the whole business of systematic collection of natural history sounds is only just beginning.

SUMMARY

Birdwatchers are encouraged to take up sound recording now that the equipment is so much reduced in size and weight. The need for new recorded material is stressed and several fertile fields are suggested. Guidance is given on the selection of equipment, and the methods of documenting and processing recordings so that they can more readily contribute to research are outlined.



PLATE 21. Golden Eagle *Aquila chrysaetos* alighting at eyrie with one chick, Argyll, June 1975; taken from a colour negative. *Donald Platt* pages 216-218



PLATE 22. Two studies of geese. Gaggle of Barnacle Geese *Branta leucopsis* rising, Islay, Strathclyde, March 1975 (*Pamela Harrison*); and seven Brents *B. bernicla* amongst rocks, Cornwall, February 1976 (*J. B. and S. Bottomley*)

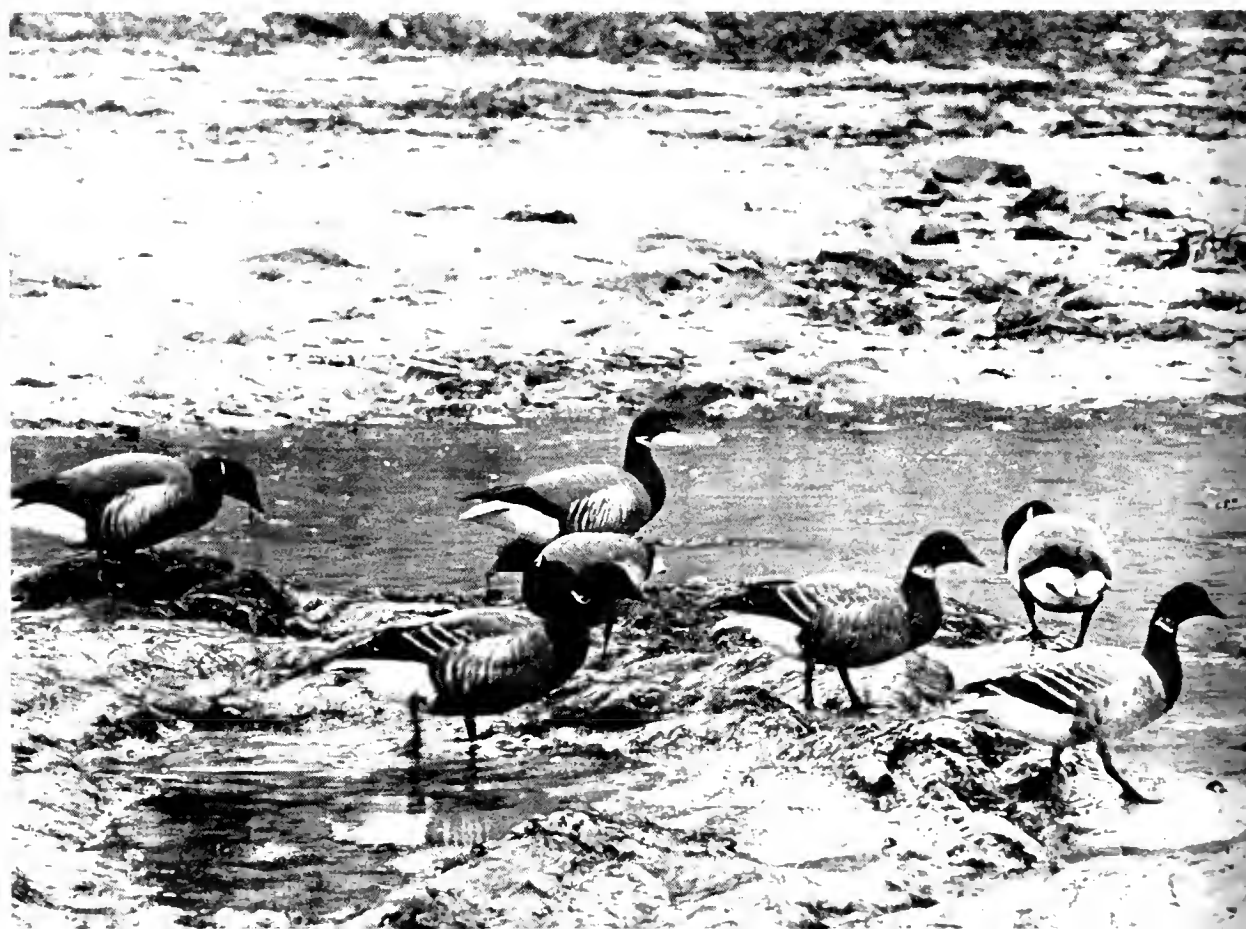




PLATE 23. Two herons after prey in Africa. Adult Squacco *Ardeola ralloides* walking stealthily on land, The Gambia, November 1975 (K. J. Carlson); and Purple Heron *Ardea purpurea* in water, Kenya, October 1973 (J. F. Reynolds).





PLATE 24. Long-eared Owl *Asio otus* on branch over nest, holding mouse and about to drop down to its chicks, Nottinghamshire, May 1971 (Derick Scott)



PLATE 25. First-autumn Little Gull *Larus minutus* hovering, Dyfed, September 1971. Harold E. Grenfell; below, Tawny Owl *Strix aluco* flying towards nest with earthworm dangling from bill, Strathclyde, May 1975. Donald A. Smith.







PLATES 26 (opposite) and 27. Left upper, pair of Whinchats *Saxicola rubetra*, Lancashire, June 1974 (Dennis Green); lower, pair of Garden Warblers *Sylvia borin* at nest, Powys, June 1975 (Keri Williams). Above, Waxwing *Bombycilla garrulus* among berries, Staffordshire, February 1975 (S. C. Brown); below, male Bullfinch *Pyrrhula pyrrhula*, Hertfordshire, April 1975 (E. A. Jones).



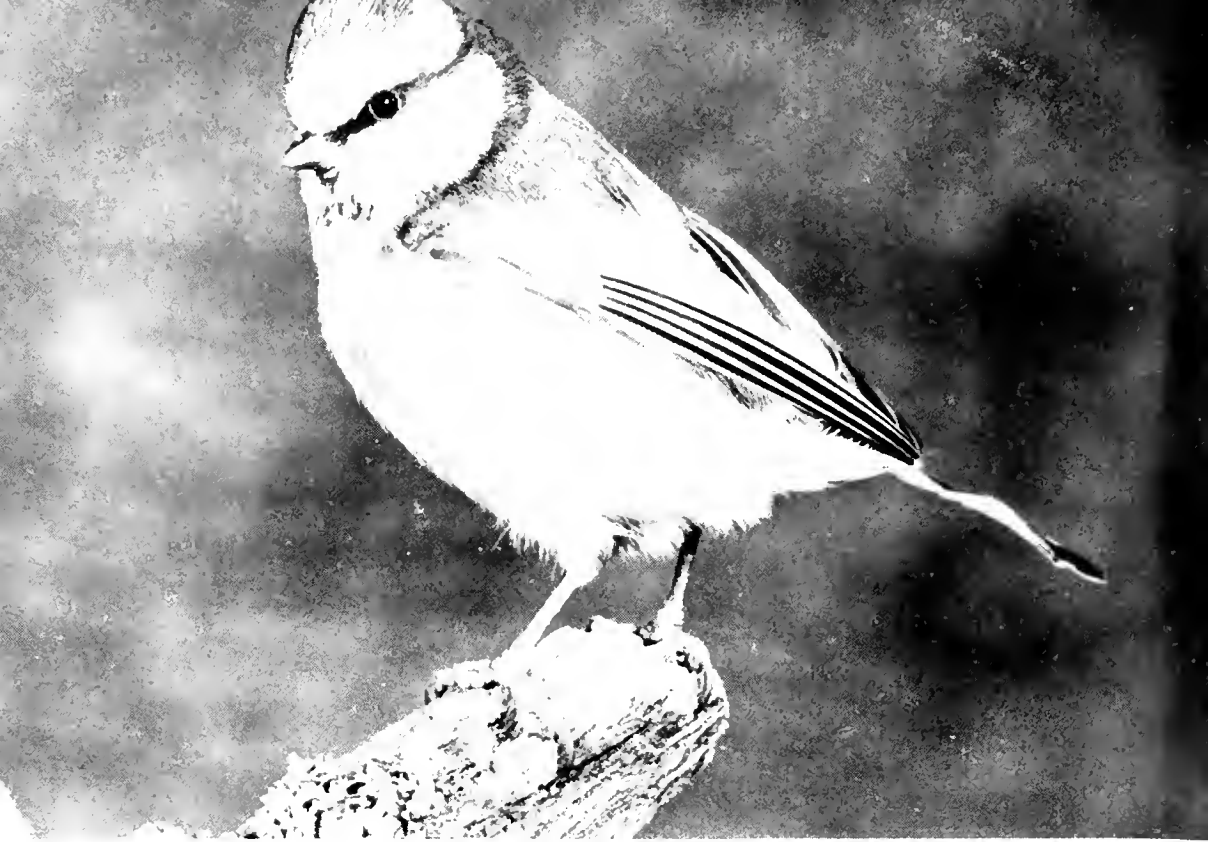


PLATE 28. Blue Tit *Parus caeruleus* perched on branch, Greater Manchester, January 1976 (E. K. Thompson); below, Willow Warbler *Phylloscopus trochilus* soaking itself thoroughly in small pool, Derbyshire, July 1975 (J. Russell)



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Appendix. List of species for which sound recordings are urgently required for the second and third volumes of 'The Birds of the Western Palearctic'

Lappet-faced Vulture <i>Torgos tracheliotus</i>	Greater Sand Plover <i>C. leschenaultii</i>
Sooty Falcon <i>Falco concolor</i>	Caspian Plover <i>C. asiaticus</i>
Caucasian Blackcock <i>Lyrurus</i>	Pintail Snipe <i>Gallinago stenura</i>
<i>mlokosiewiczii</i>	Senegal Thick-knee <i>Burhinus senegalensis</i>
Caucasian Snowcock <i>Tetrogallus</i>	Egyptian Plover <i>Pluvianus aegyptius</i>
<i>caucasicus</i>	White-eyed Gull <i>Larus leucophthalmus</i>
Caspian Snowcock <i>T. caspius</i>	Great Black-headed Gull <i>L. ichthyæetus</i>
Sand Partridge <i>Ammoperdix heyi</i>	Grey-headed Gull <i>L. cirrhocephalus</i>
Double-spurred Francolin <i>Francolinus</i>	Sabine's Gull <i>L. sabini</i>
<i>bicalcaratus</i>	Ross's Gull <i>Rhodostethia rosea</i>
Arabian Bustard <i>Ardeotis arabs</i>	Lesser Crested Tern <i>Sterna bengalensis</i>
Houbara Bustard <i>Chlamydotis undulata</i>	White-cheeked Tern <i>S. repressa</i>
Andalusian Hemipode <i>Turnix sylvatica</i>	Bridled Tern <i>S. anaethetus</i>
Kittlitz's Plover <i>Charadrius pecuarius</i>	

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More examples of the best recent work by British bird-photographers

Plates 21-28

In the 17 years since we began this annual feature on the best contemporary bird-photographs in black-and-white, we have now published a total of 153 species by 77 photographers. There is only one new photographer this year, but five species are included for the first time. After last year's record total, the number of prints submitted dropped to 116 by 31 photographers, but the standard was as high as ever and once again the choice was extremely difficult. Some photographs were left out only because we had included the species concerned on several previous occasions. As usual, we received much assistance from the secretaries of the Zoological Photographic Club, the Nature Photographic Society and the Nature Photographers' Portfolio, and we wish to thank them and all the others who recommended particular photographs to us.

We remind photographers that birds on Schedule 1 of the Protection of Birds Act 1967 (listed in *Brit. Birds*, 61: 215; 64: 189) may not be disturbed at or near the nest unless approval has first been obtained from the Nature Conservancy Council, at 12 Hope Terrace, Edinburgh EH9 2AS. Despite this restriction, it is probably true to say that more photographs than ever before are now being taken of some of our rarer birds, though not necessarily at the nest, for most photographers are naturally anxious to get to grips with the more spectacular or unusual species. One can well imagine the excitement that Donald Platt must have experienced when he first saw the Golden Eagle *Aquila chrysaetos* alighting at its eyrie (plate 21); he obtained a fine series of colour photographs, and this monochrome print was made from a colour negative.

We were delighted to learn that Dr Pamela Harrison was recently elected to Fellowship of the Royal Photographic Society, as well as awarded the Cherry Kearton Medal of the Royal Geographical Society, but the standard of her work makes neither of these honours surprising; we chose her Barnacle Geese *Branta leucopsis* (plate 22a), one of a series taken on Islay, because it is so full of life and movement as the birds take to the air. Each year Brian and Sheila Bottomley almost embarrass us with the number of first-class photographs that they submit and very recently we published some of their waders (*Brit. Birds*, 69: plates 13-16); on this occasion we have selected a little group of five Brent Geese *B. bernicla* (plate 22b) because it is an outstanding

shot which is rather different from their usual superb close-ups of single birds and also provides an interesting comparison with the Barnacle Geese.

The next two photographs are of herons which are no more than vagrants to Britain but which are familiar sights in parts of southern Europe, though both these studies were taken in Africa. Dr K. J. Carlson's Squacco Heron *Ardeola ralloides*, photographed in the Gambia, is shown in an unusual pose as it creeps forward, with body horizontal, presumably stalking its prey (plate 23a); this is behavioural photography at its best. Equally attractive is the Purple Heron *Ardea purpurea* taken by J. F. Reynolds in Kenya as, with water almost up to its belly, it wades through the shallows in search of food (plate 23b).

Our new photographer this year, Derick Scott, has provided us with an exceptional shot of a species which we have not included before: it shows a Long-eared Owl *Asio otus* about to drop down to its nest with a mouse in the bill for its young (plate 24). (Incidentally, we note that this was taken five years ago and it makes us wonder how many other photographers are quietly producing work of this standard without anyone hearing of it.) Tawny Owls *Strix aluco* are much commoner and also more familiar in this series, but Donald A. Smith's photograph, taken with high-speed electronic flash, of one flying towards its nest with a long earthworm dangling from its bill (plate 25b) is most spectacular. Certain photographers produce outstanding work year after year; this applies particularly to Harold E. Grenfell, whose delightful and dainty study of a first-autumn Little Gull *Larus minutus* in flight (plate 25a) reveals the wing and body markings so clearly.

So many photographers concentrate on the larger birds that it is a pleasure, as last year, to be able to devote nearly half the selection to small passerines. We have included photographs of Whinchats *Saxicola rubetra* on three previous occasions, but Dennis Green's study of a pair perched above the nest with food for their well-grown young (plate 26a) must rank among the best. For photographic perfection, too, one would have to look long and hard for a better picture than Keri Williams's pair of Garden Warblers *Sylvia borin* at the nest (plate 26b): it has faultless definition, and shows both birds and nest very clearly with sufficient of the habitat to illustrate the site.

Waxwings *Bombycilla garrulus* are usually tame enough and seem to be so busy searching for food that they take little notice of human beings; even so, we have not seen a more evocative or apposite shot than S. C. Brown's beautiful study of a single bird perched in a bush and framed with berries (plate 27a). E. A. Janes has taken a number of remarkable photographs at a little drinking

and bathing pool for birds in Hertfordshire: in 1975 we published a male Brambling *Fringilla montifringilla* of his (*Brit. Birds*, 68: plate 25) and this year he submitted several more studies, including Woodpigeon *Columba palumbus*, Stock Dove *C. oenas*, Jay *Garrulus glandarius* and Robin *Erithacus rubecula*, but we liked best his Bullfinch *Pyrrhula pyrrhula* (plate 27b).

The Blue Tit *Parus caeruleus* is such a common species that we were most surprised to find that it had not previously featured in this series; E. K. Thompson has made it possible to rectify this with an outstanding shot of one perched on a lichen-covered branch (plate 28a). The last in this selection is J. Russell's bathing Willow Warbler *Phylloscopus trochilus* (plate 28b): it is an excellent photograph which illustrates particularly well an aspect of feather maintenance, and most people may not have seen a warbler douse itself so thoroughly.

We thank all the photographers who sent prints and apologise to those whose work we have not been able to include on this occasion. We hope that they will not be put off and that they will continue to submit a selection of their best photographs each year. The aims of this feature are to place on permanent record in one journal some of the finest bird-photographs, to encourage competition, to give newcomers an opportunity of seeing their work published, and to show photographs which normally fall outside the scope of those in *British Birds*. The closing date next year will be 31st January 1977 and we ask all photographers to put on each print his or her name and address and, in addition to the species, the county (or country if taken abroad) and the month and year.

ERIC HOSKING and I. J. FERGUSON-LEES

Notes

Grey Heron hunting by swimming On the evening of 20th September 1973, at the RSPB reserve of Leighton Moss, Lancashire, I saw an adult Grey Heron *Ardea cinerea* fishing near one of the meres. After a while the bird took off and flew low over the water, but at this point my attention was diverted. When I looked again, seconds later, I was surprised to see that it had settled on the mere in deep water. It remained still for a few minutes and then began to swim forward very slowly, with its head and neck stretched out in front close to the water's surface. After swimming for approximately four metres the heron succeeded in catching a large fish resembling a Roach *Rutilus rutilus*. Immediately its prey was secured the bird took off with no apparent difficulty and flew to a nearby island, where it devoured its meal.

J. DRIVER

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Mutual spinning by Red-necked Phalaropes Spinning is a characteristic feeding movement employed by all three phalaropes *Phalaropus spp*, used on the water by Red-necked *P. lobatus* and Grey Phalaropes *P. fulicarius* and on both water and land by Wilson's Phalarope *P. tricolor*. Its precise function is unknown, but Höhn (1971), who discussed the matter in detail, agreed that it probably activates immobile prey in cold water, as suggested by Tinbergen (1935), and that the widely held view that it stirs up edible matter from the bottom of shallow water may be equally valid. Any connection between spinning and courtship display is generally discounted by most authors, but Höhn briefly mentioned having seen a pair of Red-necked Phalaropes spinning together, in the same direction, and suggested that this might have been a form of courtship display. Dr O. Hildén, who read a draft of this note, stated (*in litt.*) that he and S. Vuolanto had frequently observed spinning which seemed to have a connection with courtship display during the course of a long-term study of Red-necked Phalaropes in southern Finland (Hildén and Vuolanto 1972).

On 28th May 1971, at Varanger Fjord in arctic Norway, A. R. McGregor and I watched three Red-necked Phalaropes, a female and two males, feeding on the well-known pool at Nesseby. One male, the more brightly plumaged of the two, was constantly followed by the female (the other male being totally ignored) and several incomplete displays by her were seen. When this male started to spin, the female, who was directly alongside him, at once spun excitedly in the opposite direction, giving us the impression that her movements had been directly stimulated by his.

From 2nd to 6th June inclusive, we watched (and ARM filmed)

Red-necked Phalaropes at Passjärvi, near Karigasniemi in Finnish Lapland. Here, 60 to 70 birds were usually present in a very small area of shallow water at the eastern, early-melting end of the lake; Passjärvi is used as a feeding and display area prior to dispersal to breeding grounds in the nearby marshes. We thought that most of the phalaropes present were already paired, but interpreting and correctly recording much of the regular and vigorous display we watched was difficult with so many birds milling about in such a confined area. Equally, distinguishing individuals for any length of time was almost impossible. However, further evidence of a possible display function of spinning was obtained. On a number of occasions mutual spinning, as seen at Nesseby, was observed. Frequently a spinning bird, of either sex, was rapidly joined by another, always of the opposite sex, which immediately began to spin in the opposite direction. Often they seemed to spin at a slightly faster rate than normal and were usually so close to each other that physical contact, particularly by their 'sterns', was frequent. Sometimes the second bird did not dab at the water with its bill while spinning, yet equally often it did so; and on a few occasions neither did so. Although all these birds appeared just as excited as those involved in other displays, on no occasion was mutual spinning seen to be followed by any further displays or by the mating attempts which were otherwise frequent round about—but in the *mêlées* which often developed nearby, and subsequently involved birds under observation, these may well have been missed.

While our observations were both incomplete and inconclusive, they do seem to suggest that mutual spinning by two phalaropes does play some part in courtship display and that further investigation into this aspect of phalarope behaviour would be worth while.

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Eyesight of Barn Owl There is much literature concerning the efficiency of the sight of owls generally, and that of the Barn Owl *Tyto alba* is regarded as no exception; indeed, Curtis (1952, unpublished Ph.D. thesis, Cornell University) proved that this species was able to see cardboard barriers placed in its flight path at illuminations of extremely low intensity. However, during a long-term

study of the Barn Owl I have found clear evidence that its ability to recognise, rather than merely see, objects in the dark is very poor. I first noticed this in 1950, when a Barn Owl, approaching me as it hunted along a hedgerow, frequently continued past without deviating, at a distance of two or three metres, provided I remained perfectly still and close to the hedge. Subsequently I often escaped the detection of hunting Barn Owls simply by 'freezing' whenever they came close enough to be alarmed.

In 1971 a pair nested in a small annexe to a large barn, from which I often observed them. The owls frequently entered the barn, but whenever this happened I remained motionless until they departed. I was never detected, even though at times they were no more than three or four metres away on the beams overhead. In September 1971 I commenced twelve months' regular observation of a second pair. This time I installed a comfortable chair on the upper floor of the large barn which they inhabited. At first the owls, on my arrival, would fly in to a crevice where they could not be seen; I then sat quietly until they emerged and flew to the beams where they were in full view in the light of my torch, which did not carry a red filter; I could then observe them for an indefinite period from about ten metres. Not only were they unaware of my presence but, during their courtship in March and April 1972, they occasionally passed or stood on the floor by my chair at a distance of about one metre. Later, they visited the nest regularly without noticing me, at five or six metres, and the owlets, when they were fledged, often played under my chair and on my shoes. On one occasion a 67-day-old owlet perched on my left knee for a minute or more and then jumped across to my right knee, throwing grotesque shadows about the barn as it bobbed its head in front of my torch.

A. B. Warburton has told me that once a recently fledged owlet alighted on his head, while its single nest-mate peered for some seconds into his eyes, from a distance of about 20 cm, before taking fright. I have two similar records: a Cheshire farmer, leaning against a fence post, had a Barn Owl perch momentarily on his head; and, in Lancashire, another bird, after catching prey, flew up and landed on the surprised observer's head (J. Wilson *in litt.*).

During my study I also had close encounters with Tawny Owls *Strix aluco*. I was always detected by this species unless I was in a hide, and it is tempting to believe that the relatively small eyes of the Barn Owl result in reduced visual acuity if not in sensitivity to light. That the sight of the Barn Owl may be more efficient in daylight was demonstrated when I attempted to observe the second pair of owls one late afternoon when the barn was relatively well lit by the sun shining through the small roof window—both owls

spotted me immediately they emerged from hiding.

My thanks are due to the Forestry Commission, to Miss R. Edmundson and to Mr and Mrs D. Lord, on whose land my observations were conducted. I also thank A. B. Warburton and J. Wilson for providing additional data.

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Sand Martins collecting nest material from ground On 24th April 1975, Sand Martins *Riparia riparia* that breed in a small colony in drainage pipes in the wall alongside the River Avon in the centre of Salisbury, Wiltshire, were visiting the nest sites carrying dried grasses, presumably nest material. *The Handbook* states that the nest 'consists of straw . . . picked up in flight', and Bannerman (1954, *The Birds of the British Isles*, vol 3) mentioned 'bits of straw or grass which the birds probably pick up in flight'. The martins were settling on a small patch of grass, picking up the dead loose strands and carrying them away to the nest sites about 50 metres distant. Ten birds were engaged in this activity.

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The pale rump of juvenile Rose-coloured Starlings An excellent opportunity for field comparisons between juvenile Starlings *Sturnus vulgaris* and juvenile Rose-coloured Starlings *S. roseus* arose during an expedition to eastern Turkey in August 1974. Pale juvenile Starlings without close inspection and in bright sunlight, might be mistaken for juvenile Rose-coloured and special attention was therefore paid to the identification of all juvenile *Sturnus*. A total of 36 juvenile Rose-coloured was observed at four localities, at three of which direct comparison with Starlings was possible. The usual features were noted and an additional, and constant, mark most useful in distinguishing juveniles of the two species was the pale rump of Rose-coloured. This was a roughly rectangular, sandy-brown area contrasting with the darker back, tail and wings and visible at ranges of over 100 metres. It could be seen on feeding birds but was more noticeable in flight, when it was a striking field mark of unmixed parties; it also enabled single juvenile Rose-coloured Starlings to be picked out among flocks of juvenile Starlings at angles where other field characteristics were difficult to see. Unfortunately no example of the very pale biscuit-coloured variety of juvenile Starlings was seen for comparison.

The literature stresses the sandy-brown plumage of juvenile Rose-coloured Starlings but not the contrastingly pale rump. This latter feature can be seen in a photograph in *Birds of the World* (1970: 2753).

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Reviews

Handbook of the Birds of India and Pakistan. By Sálím Ali and S. Dillon Ripley. Oxford University Press, Bombay. Vol. 7 (1972): 236 pages, 11 colour plates. Vol. 8 (1973): 277 pages, 8 colour plates. Vol. 9 (1973): 306 pages, 10 colour plates. Vol. 10 (1974): 334 pages, 12 colour plates. All with many line drawings and maps. Volumes 7 and 8 £8.00 each, Vol. 9 £8.50 and Vol. 10 £11.20.

Although the final volume of this monumental series did not appear in England until 1975, it was published in India in 1974; thus the two distinguished authors achieved ten volumes, covering some 1,200 species, in six years—a feat which bears favourable comparison with *The Handbook of British Birds*, on which (except for the omission of detailed plumage descriptions) it is closely modelled, and which those concerned with similar projects can only regard with admiring envy. The main features of this massive undertaking were described fully in earlier reviews (*Brit. Birds*, 62: 544-546; 66: 170-171), so it is necessary to say only that the welcome speed in completion has led to no lessening in the high standards set at the beginning. The inhabitants of the sub-continent are generally benevolent in their attitude to wildlife but the pressures of an ever-increasing population present considerable threats to some of the larger and more restricted species, so it is hoped that this authoritative work will stimulate both ornithology and conservation there. Three features of the work throughout deserve special mention—the pinpointing of gaps where further research is needed, the inclusion of detailed distribution maps (more frequent in later volumes) and the wealth of personal observations, above all from the senior author Dr Sálím Ali. He has recently been awarded the J. Paul Getty Wildlife Conservation prize for 1975; his countrymen could find no happier way of adding to this signal international honour than by building on the foundations so securely laid by this distinguished international team.

STANLEY CRAMP

Birds of Prey. By Michael Everett. Orbis Publishing, London, 1976. 128 pages; 129 colour photographs including front and back flaps; five figures. £3.95.

Birds of prey have become a very fashionable subject for books and the advent of another gives causes for reflection on the author's and publisher's reasons. This book has a large format and is very profusely illustrated in relation to the amount of text, which is essentially a compilation outlining the variety of birds of prey in the world and their mode of life.

After a brief note on the fossil record the author devotes his

longest chapter to a summary of the world list of birds of prey and their distribution by countries and habitats. This is followed by sections on physical characteristics and hunting and feeding, in which the wide diversity of prey and adaptations for dealing with it are well illustrated. Other sections deal with the breeding cycle, migration and the world status of birds of prey in general. A full species list and brief bibliography conclude the book.

It is the illustrations that will be of greatest appeal, for they are a superb collection of subjects from all over the world and should serve the purpose of interesting a much wider public than just dedicated ornithologists in this exciting and much persecuted group. This would seem to be the main target of the book and, judged by this criterion, it should be a great success, even if the uninitiated whose attention it must attract to serve the presumed purpose may be put off initially by the first section summarising the world variety of species. Those ornithologists on the other hand whose horizon may be mainly restricted to their own country or continent should find much of interest in this part and in the comments on feeding activities.

As a plea for conservation in a readable, accurate but not too scientific context, the author and publisher are to be congratulated on producing such a splendidly illustrated volume at a price which today must be considered very reasonable.

R. C. HOMES

The Dictionary of Birds in Colour. By Bruce Campbell. Michael Joseph Ltd, London, 1974. 352 pages; 1,008 colour photographs; 9 line drawings. £6.00.

Alfred Newton in a note to the first part of his *Dictionary of Birds* (1893-96) wrote a typical piece of Victorian prose . . . 'I trust that this Dictionary will aid a few who wish to study Ornithology in a scientific spirit, as well as many who merely regard its pursuit as a pastime, while I even dare indulge the hope that persons indifferent to the pleasures of Natural History, except when highly-coloured pictures are presented to them by popular writers, may find in it some corrective to the erroneous impressions commonly conveyed by sciolists posing as instructors'. This is still a reasonable hope, and one with which I am sure Bruce Campbell, in a less ornate fashion, would agree for his own dictionary published some 80 years later. Though called a dictionary and arranged as such, it is not to be confused with either Newton's Dictionary or Sir A. Landsborough Thomson's *A New Dictionary of Birds* (1964), and certainly cannot take their places on the shelf. It is an entirely different concept.

The book begins with a concise description of the origins, zoogeographical distribution, anatomy and classification of birds. Then follows a useful short exposition of the 154 families, a small glossary

of technical terms, and, the chief part of the book, over 1,000 photographs and the main text. The photographs are arranged in sequence of orders and families, based essentially on the *Check-list of Birds of the World* edited by J. L. Peters and his successors; and within each family in alphabetical order of genera and specific names. The text, which is arranged as a dictionary, describes each illustrated species, plus a number of allied species. Details are given of distribution, diagnostic plumage characteristics, habitat preferences, feeding behaviour and foods, and breeding biology.

This is a particularly difficult book to evaluate for, like reference and recipe books, it needs to be used over a period before any judgement can be made as to its worth. I have therefore deliberately delayed reviewing it quickly, and instead have used it extensively during the last few months. For many people it will, however, not be a book of reference, but a book to browse through or occasionally dip into. For these people it certainly succeeds, for it is a pleasant production, well designed with clear typography. It is full of interesting facts and many delightful photographs. For the uninitiated, and the not so interested, it has a most confusing arrangement. The mass of photographs at the beginning, identified only by scientific names, is unnecessarily confusing. For those who know only the English name of a bird and wish to refer to the text and photograph, it can be irritatingly perplexing. With perseverance the clues can be found and, once the procedure is worked out, it becomes easier and, though time-consuming, is worth the trouble. The text is admirable and an excellent summation of present knowledge. I have nothing but praise and admiration for this part. Like so much of Bruce Campbell's writing, it is clear, concise and easily understood.

The photographs, which are more often chosen for their identification qualities rather than their aesthetic value, are mainly portraits, often of single, centred, birds. Relatively few show any action, and if they do there is no explanation as to what is happening. The majority are good, a few bad (e.g. 79, 385), a few outstanding (362), a few confusing (126), and in a few the colours are wrong (207, 416). Occasionally the selection is unrepresentative of the family, e.g. Ramphastidae. Still, it is an amazing collection of photographs.

I think Newton's hope will be well served by this book, and Dr Bruce Campbell is to be congratulated on bringing together such a wealth of information and pleasure.

P. J. S. OLNEY

Letters

A question of priorities John Gooders's 'Viewpoint' (*Brit. Birds*, 69: 16-19), having established by assumption that human life is dependent on birds and that without human life there can be no appreciation of birds by human beings, arrives at the conclusion that there must be birds before we can conserve them. This is self-evident and does not require the philosophical crutch of Professor R. S. Peters's dialectic, nor does it add anything to the argument on bird conservation. The assumption that mankind needs birds for the survival of the ecosystem which supports him also removes any ethical considerations from the question 'Should we conserve birds?'. The argument becomes materialistic in concept because the philosophically trivial ethical point of whether we agree that the survival of mankind is a good thing is dealt with by assuming that the answer is yes. From this materialistic beginning the only conclusion is that man should spend his resources on discovering what are the key species in the ecosystem, if there are any, and ensuring their protection against possible future mismanagement. It seems unlikely that these birds, if they exist, are the ones found on the list of endangered species whose population numbers are small and often localised, and therefore less likely to have any important ecological impact. This conclusion, of course, assumes limited funds, which the aforementioned programme would absorb with no surplus for the materially less important problem of saving endangered species. Mr Gooders's conclusion, based on the same assumptions, is that we must make it our aim to preserve the maximum variety, a more acceptable conclusion to an argument assuming aesthetics as the 'raison d'être' for conservation. If we are to make judgements on an aesthetic basis there should be some consideration of judgements made on a scientific basis (in the less applied sense than that implied in the initial argument founded on materialism), which in at least some instances lead to conclusions encouraging the spending of money on maintaining populations on the edge of their range. For example, peripheral populations are a focus of scientific interest as this is where adaptive radiation and speciation are expected to occur. Perhaps expensive Dartford Warblers and Marsh Harriers may repay their debt by furnishing science with useful information.

The essence of the conservation problem, which was glossed over by the confusion of argument in Mr Gooders's article, should now be apparent, if it was not already so. There are at least three possible starting points for the argument, and three different criteria for the basis of conservation as conclusions: who is to judge which is the correct view or in what proportion each argument should affect the direction of conservation? What is certain is that when funds are

finite these three arguments are in conflict. The conflict can be resolved only on the basis of value judgements, an area most philosophers regard either as outside the scope of logical argument or at least covered with ice too thin to skate on.

BARRIE PEARSON

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The research John Gooders undertook for his 'Viewpoint' was inadequate. The British National Appeal of the World Wildlife Fund has operated a thirds system ever since it started making grants for scientifically approved conservation projects. One-third of the net income received in Britain goes to projects abroad, one-third to projects in this country, and the allocation of the middle third is decided towards the end of the year and goes to projects most urgently requiring it (a high proportion goes to overseas projects). The 'little old lady' he refers to is by no means deceived into thinking that her pound goes entirely to international conservation. In every piece of literature we have ever produced, where it is appropriate, the thirds system is explained. Indeed, it is very likely that, unless a donor, at any level, could be assured that some part of his donation was going to projects in Britain, he would be reluctant to give us any money at all.

The Wildfowl Trust, the Royal Society for the Protection of Birds and the Society for the Promotion of Nature Reserves are among the best managers of wild conservation areas in Britain and these organisations are, therefore, often the recipients of the BNA's British third. The WWF, on occasions, receives earmarked money for Wildfowl Trust projects from such countries as the United States. The SPNR and the RSPB manage many kinds of habitats other than wetlands and the BNA has given large sums of money for the purchase of woodlands and meadows. Many individuals have also been given grants for projects for endangered mammals, plants and insects.

John Gooders singles out the Siberian Crane and the Bald Ibis as symbolising birds the WWF does nothing to conserve. On the contrary, in 1972 and 1973 WWF supported the conservation of the Bald Ibis with a grant of nearly £5,000, and more than three times this sum will be spent on another WWF Bald Ibis project in 1976/77. The Siberian Crane is also the subject of a current project. Apart from these two species, we have current bird projects in northern Europe and Scandinavia, Spain, Austria, Italy and New Zealand. Quite obviously, all national park projects which the WWF supports assist bird conservation and our current one for the Banc d'Arguin in Mauritania is primarily for the conservation of wintering Palearctic migrants.

The Red Data Books of endangered species referred to by John Gooders, which include a volume on birds, are themselves produced with the help of a WWF grant.

ROBERT ADAMS

Managing Director, WWF (British National Appeal), 29 Greville Street, London EC1N 8AX

The origin of British Aquatic Warblers The letters by Dr C. Joiris and Dr J. T. R. Sharrock (*Brit. Birds*, 68: 519) I feel call for further comment. I support the views of Dr Joiris for the following reasons. I trap *Acrocephalus* warblers in a reed bed at Long Rock, west Cornwall, each morning commencing at dawn, from July to September, and keep records of wind directions and strengths and weather conditions. Owing to the prevailing E/NE winds during the months of July, August and September, which in anticyclonic weather can be very strong at times, I hold the view that our Aquatic Warblers *A. paludicola* originate from central Europe. The autumn of 1972 stands out in my memory as one of strong anticyclonic winds from an easterly quarter, and the details in table 1 are extracted from my records.

Table 1. Details of wind direction, by days, at Long Rock, Cornwall, July-September 1971-75

Total numbers of Aquatic Warblers *Acrocephalus paludicola* are those given in the annual Rarities Reports in *British Birds*

Year	JULY				AUGUST				SEPTEMBER				Total Aquatic Warblers
	S	SE	E	NE	S	SE	E	NE	S	SE	E	NE	
1971	—	1	1	13	—	1	1	3	1	12	2	2	27
1972	—	—	11	1	—	2	—	8	—	5	4	11	56
1973	1	—	1	1	1	2	3	2	—	5	4	4	49
1974	All SW, W or NW*				1	1	2	4	2	1	—	—	22
1975	3	—	1	3	2	1	2	5	—	—	2	5	28

It will be seen that the wind blew from a S/SE quarter on 42 days and from an E/NE quarter on 96 days. The peak year for Aquatics in Britain was 1972, when from 21st to 26th August the wind blew from NE, force 3-6, with unbroken sunny weather. In connection with this, on 23rd August the first three Aquatic Warblers were trapped at Long Rock and Marazion; also trapped was an adult Sedge Warbler *A. schoenobaenus* which had been ringed on Fair Isle, Shetland, on 9th June 1972. On the same day a juvenile Sedge Warbler was trapped and ringed, and this was later trapped in southern Norway, on 25th May 1973, presumably in its breeding area. I feel that these records support the view that Aquatic Warblers in Britain do not originate from southern Europe.

Finally, Dr Sharrock stated that 'the Aquatic Warbler seems to be unique in having its main concentration on the British south coast'. This is true, but the totals are being inflated by activities of reed-bed ringers on the south coast compared with those on the east coast; most Aquatics are trapped rather than observed. *Radipole*, 1 (1972: 30) stated that 'there were no positive sight records of any Aquatics in the field', yet Radipole trapped 22 of the species. This south coast bias may be a reflection of the activities of humans rather than of the birds themselves.

B. PATTENDEN

17 Wheal Rodney, Gwallon, Marazion, Cornwall

The question of the origin of British Aquatic Warblers is, I believe, still wide open. Anticyclonic weather is typically a requirement for reverse migration. To discover the true situation, however, it would be necessary to take the 1958-75 August-September ringing totals in coastal sites in each county from Yorkshire round to Scilly of Sedge Warblers and Aquatic Warblers and compare the proportions. This might show that Mr Pattenden is correct, and that it is purely ringing bias that produces the concentration in the central part of the south coast of Britain; personally, I doubt it.

J. T. R. SHARROCK

59 Curlew Crescent, Bedford MK41 7HY

Ravens breeding on city buildings R. A. Hume's note on the successful breeding of Ravens *Corvus corax* on Swansea Guildhall (*Brit. Birds*, 68: 515-516) and his final remark that there is no mention in *The Handbook* of Ravens nesting on buildings prompt us to quote from the minutes of a meeting of the Ashmolean Society held on 6th December 1847:

'The minutes of the last meeting were then read, and the following presents announced:—

A remarkable raven, shot on its return to its eyrie, which it had long occupied on the top of John, Duke of Marlborough's pillar, in Blenheim Park, Dec. 3, 1847,—from the Duke of Marlborough. The expanse of its wings is four feet.' (Abstracts of the Proceedings of the Ashmolean Society, from 1843 to 1852 inclusive. Vol 2. Oxford: printed by J. Wright, Printer to the University, for the Ashmolean Society. M.DCCC.LIV: pp 174-175.)

This record is not given by O. V. Aplin in *Birds of Oxfordshire* (1889); his last breeding record for the county was in 1834. Mrs M. C. Radford, however, gave a version of it in *The Birds of Berkshire and Oxfordshire* (1966: 141).

In *A Field Guide to Birds' Nests* (1972), BC and James Ferguson-Lees mentioned 'a few records from ruined buildings', e.g. the old chimney in Yarner Wood National Nature Reserve, Devon, where

BC saw a brood of young on 27th April 1954 and was told that the site was 'traditional'. The Swansea records may, however, well be the first from an occupied building in Britain.

BRUCE CAMPBELL

West End Barn, Wootton, Woodstock, Oxford OX7 1DL

G. E. S. TURNER

University Museum, Oxford

News and comment *Peter Conder*

Another wetland endangered The Alfaques peninsula is not a name that rings bells, but bells need ringing now. The peninsula is part of the River Ebro's delta system on the Catalan coast of Spain, and its dunes, lagoons, marshes and rice fields are marked for major urbanisation. Plans have been drawn to bed 130,000 tourists with facilities for 6,500 boats, an airport and a heliport. The Alfaques peninsula is an invaluable breeding site for numbers of Sandwich, Little and Common Terns as well as Avocets, Black-winged Stilts, Oystercatchers and other waders. Particularly interesting breeders in 1975 were five pairs of Slender-billed Gulls and eleven pairs of Flamingos. S. P. Mills of Suntrap, Forest Hill, Oxford, urges ornithologists to write to the Secretario General, CIMA, Ayala 100, Madrid 6, Spain, protesting that in European Wetlands Year, when governments should be setting out to preserve wetlands, they are destroying part of a delta system of great scientific interest and also part of a coastline of great beauty.

Fairburn Ings The Royal Society for the Protection of Birds has just announced that it has leased Fairburn Ings, near Pontefract, from the Yorkshire Metropolitan County Council, who in their turn lease it from the National Coal Board. Fairburn Ings has for many years been a bird reserve of the West Riding Council, for whom it was managed by a group of local ornithologists. The RSPB call Fairburn Ings Britain's most improbable bird reserve, bordered as it is by colliery slag heaps and fly-ash tips. Extensive lakes have formed in areas of mining subsidence. The reserve covers 600 acres (243 ha) and more than 200 species have been recorded there. Steve Madge is the full-time warden. He has previously worked at Ynys-Hir in Wales and the Ouse Washes, and for the last three years has been summer warden at Bempton Cliffs, Humberside.

Seabird cliff tragedies Mention of Steve Madge and Bempton Cliffs makes this an appropriate moment to remind all those likely to want a closer look at seabirds that cliffs are dangerous not only to adult birdwatchers but also to their children. In recent years a number of people have fallen to their death when looking at seabirds, and at Bempton in 1975 a teenage boy slipped over the cliffs to his death, having ignored the warnings and having climbed over the fences. But even experienced birdwatchers have made a reality of the cartoon which shows the birdwatcher counting seabirds on their ledges as he flashes downwards past them, headforemost.

Changing emblems Two bird clubs have recently changed their emblems. The Cambridge Bird Club has discarded the Black Redstart in favour of a displaying Ruff, designed by Miss Isla Don. Black Redstarts have been recorded comparatively rarely in the county in recent years and according to some members 'it was a rather dull little bird anyway'. The Ruff is very appropriate to the county and has an even longer link with Cambridgeshire than the redstart.

The West Midland Bird Club's non-ornithological emblem became inappropriate when the county boundaries, on which the emblem was based, were reorganised. The club's new emblem is the Ruddy Duck, a North American stiff-tail, which has established itself on man-made waters in the area.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

February reports *D. A. Christie*

Although the predominant winds were from the east during the first half of the month, resulting in an interesting variety of out-of-season species (which will be summarised later), February was generally disappointing from the point of view of rarer birds. The **Little Bunting** *Emberiza pusilla* trapped near Bridgwater (Somerset) on 19th has already been mentioned (*Brit. Birds*, 69: 192), but otherwise the only exceptional occurrence was that of a **Black-throated Thrush** *Turdus ruficollis* at Coltishall (Norfolk) from 21st, staying well into March.

An immature **Shag** *Phalacrocorax aristotelis* was at Church Wilne Reservoir (Derbyshire) on 1st, with two immatures there on 8th, and another Shag spent three days at Retford (Nottinghamshire) from 2nd to 4th. On 13th and 14th a drake **Green-winged Teal** *Anas crecca carolinensis* frequented Loch of Bosquoy (Orkney), an accompanying duck being possibly a female of this North American race. In Scotland another **King Eider** *Somateria spectabilis* was found, at Cove Sea Skerries, Lossiemouth (Grampian), on 15th. Again there were few **Rough-legged Buzzards** *Buteo lagopus* reported, just singles on Western Moors (South Yorkshire) on 16th and at Hinton (Suffolk) on 19th; no doubt others have not been brought to our notice.

A **Grey Phalarope** *Phalaropus fulicarius* appeared at Newton-by-the-Sea (Northumberland) on 1st, a **Ring-billed Gull** *Larus delawarensis* was reported at Radipole Lake (Dorset) on 4th, and a **Sabine's Gull** *L. sabini* was noted at Seaton Sluice (Northumberland) on 23rd and 29th. A number of **skuas** *Stercorarius* spp were seen off the north-east coast of England: a **Great Skua** *S. skua* flew north at Seaton Sluice on 1st, and two more were recorded about 14 km off Sunderland (Tyne & Wear) on 26th; and an **Arctic** *S. parasiticus* flew south off Holy Island (Northumberland) on 8th, while at the same place two unidentified skuas were present offshore on 15th.

A **Woodlark** *Lullula arborea* remained at Dungeness (Kent) all month; and inland at Paekington gravel pits (Warwickshire) three were found on 21st, one of which was still present on 6th March.

A belated report concerns a **Hoopoe** *Upupa epops* seen on two January dates at West Parley, near Wimborne (Dorset); what was presumably the same bird was seen also in February, March and April, both at West Parley and about seven km away near Hurn Airport.

Observers are asked to note that the Long-tailed Skua *Stercorarius longicaudus* has been added, and Richard's Pipit *Anthus novaeseelandiae* reinstated, to the list of species considered by the Rarities Committee.

List of county and regional recorders in Britain and Ireland

The main aims of this list of bird recorders and editors are to ensure that observers on holiday away from their home areas send records to the right people, to encourage co-operation at the inter-county and intra-county levels, and to provide a source of reference for those collating records on a national basis. Several counties are divided into areas for recording purposes, but to save space, and because we believe it is less confusing, the list generally includes one name only against each county or region. For the same reasons we have largely discontinued our previous practice of mentioning observatory and other local reports which overlap with the county or regional ones, though some of these contain much important information. Titles of publications are added only when they do not include the name of the county or counties concerned. We shall be glad to know of any errors, omissions or changes of address.

ENGLAND

All counties or regions are now publishing or intending to publish annual reports, though recording arrangements have been somewhat complicated by local government reorganisation. All county names refer to the *new* counties (see *Brit. Birds*, 68: 1-4) except where otherwise specified. The recording area is described only where it differs in any way from the new county concerned; an *italicised* cross-reference indicates an apparent overlap in recording territory (in some cases very slight) (see also *Brit. Birds*, 68: 256, fig. 1). A number of other reports overlap with adjacent ones to a greater or lesser extent and cover parts of one or more counties; among the most important is the *North-Western Bird Report*, published by the Merseyside Naturalists' Association (Eric Hardy, 47 Woodsorrel Road, Liverpool L15 6UB), which not only covers Merseyside but ranges widely over north-west England and north Wales. There is now generally a good exchange of information between overlapping reports and between local and county publications, but in a few instances co-operation is still only partial or even lacking and we again urge those concerned to resolve such situations, which greatly add to the work of any national collator and confuse the casual visitor. Likewise, we hope that county societies which cover areas where the boundaries have been altered attempt to reduce unnecessary overlaps and (most important) ensure that no areas are left without a recorder.

Avon P. J. Chadwick, 3 Hill Burn, Henleaze, Bristol BS9 4RH. See also *Somerset*
Bedfordshire B. D. Harding, 26 Woodlands Avenue, Houghton Regis, Dunstable,
Bedfordshire LU5 5LJ

- Berkshire** P. E. Standley, Siskins, 7 Llanvair Drive, South Ascot, Berkshire SL5 9HS. See also *Buckinghamshire*
- Buckinghamshire** R. E. Youngman, 53 Seymour Park Road, Marlow, Buckinghamshire SL7 3ER. Report (*The Middle-Thames Naturalist*) covers Buckinghamshire and *Berkshire* east of the River Loddon. See also *London*
- Cambridgeshire** For the old county of Cambridgeshire: M. J. Allen, Honey End, Honey Hill, Fenstanton, Huntingdon PE18 9JP. For the old county of Huntingdonshire, including the Soke of Peterborough: J. D. Limentani, 10 Kingfisher Green, St Ives, Huntingdon, Cambridgeshire PE17 4HS. Records for the whole of the new county will be published in the Cambridgeshire report, but Huntingdonshire records will also be abstracted for separate publication.
- Cheshire** Dr R. J. Raines, 34 Beryl Road, Noctorum, Birkenhead, Merseyside. Report covers the old county of Cheshire apart from the Longdendale area, now in Derbyshire; and a small, newly acquired area from Hale to Moss Side, formerly in *Lancashire*
- Cleveland** G. W. Follows, 9 De Brus Court, Marine Parade, Saltburn, Cleveland TS12 1EHL. See also *Durham*
- Cornwall** L. Williams, 11 Springfield Close, Phillack, Hayle, Cornwall and D. Barker, Fourways, Tolcarne, St Day, Redruth, Cornwall
- Cumbria** For the old county of Cumberland: R. Stokoe, 4 Fern Bank, Cockermouth, Cumbria CA13 0DF. For the rest of Cumbria: Malcolm Hutcheson, Garden Cottage, Sizergh Castle, Kendal, Cumbria LA8 8AE. See also *Lancashire*
- Derbyshire** David Amedro, 212 Derby Road, Ilkeston, Derbyshire DE7 5FB
- Devon** P. W. Ellicott, Clitters, Trusham, Newton Abbot, Devon TQ13 0LX
- Dorset** J. V. Boys, 21 Moor Road, Broadstone, Dorset BH18 8BA
- Durham** Brian Unwin, 2 Albyn Gardens, Sunderland, Tyne & Wear. Report also covers those parts of *Cleveland* and Tyne & Wear which were included in the old county of Durham, and the former Startforth Rural District, which used to be in Yorkshire but is now in Durham. See also *North, South and West Yorkshire*
- East and West Sussex** C. M. James, 21 River Mead, Horsham, West Sussex RH12 1SP
- Essex** P. J. Howard, 18 Woodside Close, Colchester, Essex CO4 3HD; J. Thorogood, 49 Oaklands Avenue, Colchester, Essex CO3 5ET; and A. R. Wood, 2 Buxton Road, Monkwick Estate, Colchester, Essex. Report also covers Greater London east of the River Lea and north of the Thames. See also *London*
- Gloucestershire** C. M. Swaine, Mill House, Rendcomb, Cirencester, Gloucestershire
- Greater London** See *London*
- Greater Manchester** See *Cheshire and Lancashire*
- Hampshire** J. H. Taverner, 13 Stockers Avenue, Winchester, Hampshire
- Hereford & Worcester** For the old county of Herefordshire: Allan J. Smith, 4 The Orchard, Moreton-on-Lugg, Hereford HR4 8DG. Report covers the old counties of Herefordshire and Radnorshire; the old county of Worcestershire is covered by the *West Midland Report* (see *Staffordshire*)
- Hertfordshire** M. J. Blindell, 6 Townsend Drive, St Albans, Hertfordshire AL3 5RD. See also *London*
- Humberside** North Humberside is included in Yorkshire (see *North, South and West Yorkshire*); South Humberside is included in Lincolnshire
- Isle of Wight** J. Stafford, Westering, Moor Lane, Brighthstone, Newport, Isle of Wight PO30 4DL
- Isles of Scilly** D. B. Hunt, Pednbrose, St Mary's, Isles of Scilly
- Kent** D. Taylor, 14 Boughton Lane, Loose, Maidstone, Kent. See also *London*
- Lancashire** K. G. Spencer, 3 Landseer Close, off Carr Road, Burnley, Lancashire. Report covers the old county of Lancashire. See also *Cheshire and Cumbria*
- Leicestershire** F. C. Pickering, 16 Portsdown Road, Leicester LE2 3RB

- Lincolnshire* K. Atkin, 5 Hazel Grove, Louth, Lincolnshire LN11 8RU. Report also covers South Humberside
- London* K. C. Osborne, 8 Ellice Road, Oxted, Surrey RH8 0PY. The London Natural History Society's recording area takes in Greater London and those parts of *Buckinghamshire, Essex, Hertfordshire, Kent and Surrey* which fall within a 20-mile (32.2-km) radius of St Paul's Cathedral
- Merseyside* See *Cheshire and Lancashire*
- Norfolk* M. J. Seago, 33 Acacia Road, Thorpe St Andrew, Norwich, Norfolk NR7 0PP
- Northamptonshire* C. J. Coe, 3 The Orchard, Flore, Northampton NN7 4LH
- North, South and West Yorkshire* John R. Mather, 44 Aspin Lane, Knaresborough, North Yorkshire. Report covers the old county of Yorkshire, apart from the former rural district of Sedbergh which is now included in Cumbria and the part of Cleveland formerly in Yorkshire. See also *Durham*
- Northumberland* B. Galloway, 3 Grosvenor Court, Chapel Park, Westerhope, Newcastle upon Tyne. Report also covers Tyne & Wear north of the Tyne.
- Nottinghamshire* A. Dobbs, Cloverleigh, Old Main Road, Bulcote, Nottingham NG14 5GU
- Oxfordshire* J. M. Campbell, OCC Department of Museum Services, Fletchers House, Woodstock, Oxford OX7 1SN
- Salop* C. E. Wright, Larne, Park Avenue, Whitchurch, Salop SY13 1SH. Report covers also that part of *Clwyd* which was formerly the detached part of Flintshire
- Somerset* Miss E. M. Palmer, Highfield, Sandford Hill, Bridgwater, Somerset TA5 2AY. Report covers the old county of Somerset, thus including south *Avon*
- South Yorkshire* See *North, South and West Yorkshire*
- Staffordshire* G. R. Harrison, Bryher, Hatton Green, Hatton, Warwickshire. The *West Midland Bird Report* covers Staffordshire, Warwickshire, West Midlands and the old county of Worcestershire
- Suffolk* W. H. Payn, Hartest Place, Bury St Edmunds, Suffolk IP29 4EQ
- Surrey* D. Washington, 15 Bond Gardens, Wallington, Surrey. Report covers the old Vice-County of Surrey, thus excluding the new District of Spelthorne (containing the Staines group of reservoirs) but including Greater London south of the Thames as far east as Surrey Docks and New Addington. See also *London*
- Tyne & Wear* See *Durham and Northumberland*
- Warwickshire* See *Staffordshire*
- West Midlands* See *Staffordshire*
- West Sussex* See *East and West Sussex*
- West Yorkshire* See *North, South and West Yorkshire*
- Wiltshire* G. L. Webber, 66 Southbrook Extension, Swindon, Wiltshire SN2 1HG

ISLE OF MAN

Records are collected by the Manx Museum and National Trust, and edited by Dr J. P. Cullen, Troutbeck, Cronkbourne, Braddan, Isle of Man, for publication in *The Peregrine*, which is produced by the Manx Ornithological Society.

WALES

The annual 'Welsh Bird Report', compiled by P. E. Davis and P. Hope Jones, is published in the twice-yearly journal *Nature in Wales*. Reprints are obtainable from D. Miles, 4 Victoria Place, Haverfordwest, Dyfed (price 20p post free). This presents a summary of records

in Wales as a whole, but county or regional reports are also published and recording is mainly on an 'old county' basis. The names of the new counties are, however, used in the following list:

- Clwyd (Flintshire)* R. R. Birch, 8 Thornberry Close, Saughall, Chester
Clwyd (Denbighshire) as Gwynedd
Dyfed (Cardiganshire) P. E. Davis, Fullbrook Mill, Tregaron, Dyfed
Dyfed (Carmarthenshire) D. H. V. Roberts, 6 Ger-y-coed, Pontiets, Llanelli, Dyfed
Dyfed (Pembrokeshire) J. W. Donovan, The Burren, Dingle Lane, Crundale, Haverfordwest, Dyfed
Gwent E. Sarson, 10 Knoll Road, Abergavenny, Gwent
Gwynedd P. J. Dare, Tan-yr-allt, Trefriw, Gwynedd (*Annual Report of Cambrian Ornithological Society*)
Mid Glamorgan J. D. Wells, 44 St Davids Way, Porthcawl, Mid Glamorgan
Powys (Breconshire) M. E. Massey, Windyridge, Pennorth, Brecon, Powys
Powys (Montgomeryshire) R. R. Lovegrove, The Walk Mill, Mochdre, Newtown, Powys
Powys (Radnorshire) See ENGLAND Hereford & Worcester
South Glamorgan S. F. Young, 34 Northumberland Street, Canton, Cardiff
West Glamorgan H. E. Grenfell, The Woods, 14 Bryn Terrace, Mumbles, Swansea, West Glamorgan

SCOTLAND

The annual 'Scottish Bird Report', compiled by R. H. Dennis, is published in the quarterly journal *Scottish Birds*, the editor of which is D. Bates, Scottish Ornithologists' Club, 21 Regent Terrace, Edinburgh EH7 5BT. This presents a summary of records in the whole of Scotland, but for the time being recording continues to be on a regional basis (not corresponding to the new administrative regions), partly by old counties and partly by the 'faunal areas' shown on the map at the end of volume 2 of E. V. Baxter and L. J. Rintoul's *The Birds of Scotland* (1953). Note that Skye and the Hebrides are treated separately from the counties in which they lay. The recording areas are listed from north to south under old county names:

- Shetland (except Fair Isle)* R. J. Tulloch, Reafirth, Mid Yell, Shetland
Fair Isle R. A. Broad, Bird Observatory, Fair Isle, Shetland
Orkney D. Lea, Easter Sower, Orphir, Orkney KW17 2RE
Outer Hebrides (except St Kilda) W. A. J. Cunningham, 10 Barony Square, Stornoway, Isle of Lewis, Western Isles
St Kilda Dr I. D. Pennie, Varkasaig, Scourie, Sutherland IV27 4SZ
Caithness Mrs P. M. Collett, Sandyquoy, East Gills, Scrabster, Caithness KW14 7UH
Sutherland, Ross-shire (except Black Isle) D. Macdonald, Elmbank, Dornoch, Sutherland
Inverness-shire (within 18 miles of Inverness), Ross-shire (Black Isle only) M. I. Harvey, Clach Bhan, Loaneckheim, Kiltarlity, Inverness
Inverness-shire (mainland more than 18 miles from Inverness) R. H. Dennis, Landberg, North Kessock, Inverness IV1 1XD
Nairnshire, Morayshire, Banffshire J. Edelsten, 14 South High Street, Portsoy, Banff AB4 2NT

Aberdeenshire, north Kincardineshire A. G. Knox, Department of Zoology, University of Aberdeen, Tillydrone Avenue, Aberdeen AB9 0AA and W. Murray, Culterty Field Station, Newburgh, Aberdeen AB4 0AA

South Kincardineshire, Angus N. K. Atkinson, Dundee Museum, Albert Square, Dundee DD1 1DA and G. M. Crichton, 23 Church Street, Brechin, Angus

Perthshire R. L. McMillan, 29 Lewis Place, North Muirton, Perth

Kinross-shire Mrs Bridget Gray, Loch Leven Nature Centre, Vane Farm, Kinross

Isle of May J. M. S. Arnott, East Redford House, Redford Road, Edinburgh EH13 0AS

Fife D. W. Oliver, East Cottage, Balass, Cupar, Fife

Clackmannanshire, east Stirlingshire Dr C. J. Henty, 3 The Broich, Alva, Clackmannan

West Lothian, Midlothian, Forth islands (except May) R. W. J. Smith, 33 Hunter Terrace, Loanhead, Lothian

East Lothian, Berwickshire K. S. Macgregor, 16 Merchiston Avenue, Edinburgh EH10 4NY

Peeblesshire, Roxburghshire, Selkirkshire A. J. Smith, Glenview, Selkirk TD7 4LX

Argyll, Inner Hebrides, Skye M. J. P. Gregory, Duiletter, Kilmory Road, Lochgilphead, Argyll PA31 8NL

Dunbartonshire, west Stirlingshire, Renfrewshire, Lanarkshire, Ayrshire, Arran, Bute I. P. Gibson, The Glen, Howwood, Renfrew

Dumfriesshire D. Skilling, 86 Auchenkeld Avenue, Heathhall, Dumfries and R. T. Smith, Applegarthtown, Lockerbie, Dumfries

Kirkcudbrightshire, Wigtownshire A. D. Watson, Barone, Dalry, Castle Douglas, Kirkcudbright

In addition to the 'Scottish Bird Report', there are annual reports covering Shetland (except Fair Isle), Fair Isle, the Aberdeen area, the old county of Perthshire, the Isle of May, and the Clyde.

IRELAND

The annual 'Irish Bird Report', edited by K. Preston, The Rennies, Boreenmanna Road, Cork, and available from K. Perry, 11 Magherana Park, Craigavon, Co. Armagh, covers the whole of Ireland. In addition, county or regional reports are produced for the following areas:

Dublin and Wicklow K. Mullarney, Mill House, Whitechurch Road, Rathfarnham, Dublin 14

Louth C. C. Moore, Botany Department, University College Dublin, Belfield, Dublin 4

Waterford M. O'Meara, 153 St John's Park, Waterford

Wexford O. J. Merne, Wexford Wildfowl Reserve, North Slob, Wexford



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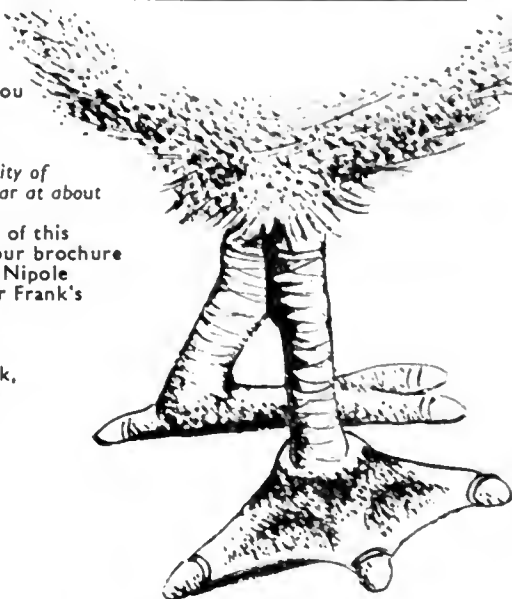


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British Birds

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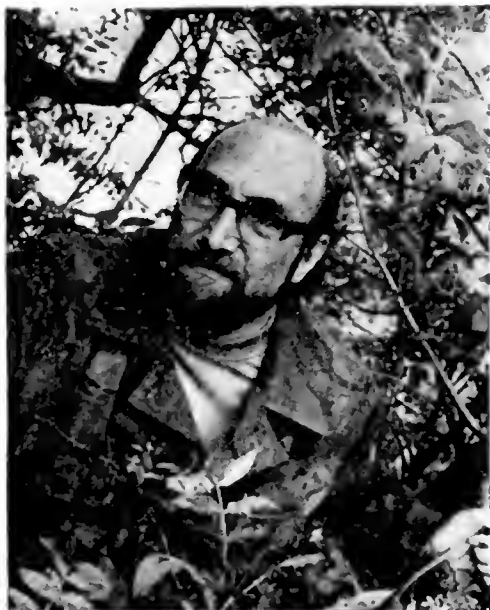
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British Birds

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JULY 1976



Editorial changes

From 1st July 1976 the editorial address of *British Birds* will be 59 Curlew Crescent, Bedford MK41 7HY. As the thousands of bird-watchers who took part in the British Trust for Ornithology/Irish Wildbird Conservancy Atlas Project will instantly deduce, this familiar address signifies the appointment of Dr J. T. R. Sharrock as editor of this journal.

Tim Sharrock relinquished a post as head of agricultural surveys in 1969, and for the past seven years has been on the staff of the BTO, as national organiser of the scheme which will culminate later this year in the publication of *The Atlas of Breeding Birds in Britain and Ireland*. In addition to his professional duties, Tim is now serving his second term on the council of the British Ornithologists' Union and is secretary of the BOU Records Committee, is a member of the *British Birds* Rarities Committee and is secretary of the Rare Breeding Birds Panel. A subscriber to *British Birds* since 1953, and regular contributor since 1954, Tim is on record as saying that, as a castaway on the hypothetical desert island, his choice of ornithological journal would be *British Birds*, since it reflects the whole spectrum of developments in ornithology here.

Ever since his first visit to Ireland in 1959, Tim Sharrock has had a close association with Irish ornithology. One of the founders of Cape Clear Bird Observatory, and editor of *The Natural History of Cape Clear Island* (1973), he has been a member of the Irish Records Panel since its formation. He sees *British Birds* very much as a journal

serving Irish as well as British birdwatchers, since Britain and Ireland are ornithologically a single geographical unit. Similarly, his leadership of the European Ornithological Atlas Committee, of which he is joint convenor with Tommy Dybbro of Denmark, is an example of the evolution of ornithology away from the insularity of national boundaries and towards international co-operation. The editorial philosophy will continue to regard the role of *British Birds* as primarily to serve British and Irish ornithologists, but with an outlook extending beyond the confines of these islands.

David Christie, who has filled the position of acting editor for the past eleven months, will continue to work on *British Birds*, as part-time assistant editor. We wish to give special thanks to David for so ably stepping into the breach at a difficult time in the journal's history.

This is a time of change in other ways. Sadly, we are losing the services of Eric Hosking, who has been photographic editor for no less than 16½ years. He has played an invaluable part in securing the high standard of illustrative material which has been such a popular feature for many years. We welcome, as his successor, M. D. England, a name which will be familiar, both as a photographer and as the adviser on avicultural matters to the Rarities Committee. There are also changes to the Notes Panel, the composition of which is now: Colin Bibby, I. J. Ferguson-Lees, Dr C. H. Fry, Derek Goodwin, M. A. Ogilvie and Dr K. E. L. Simmons.

Subscribers will recall that last year they were asked to complete a complicated form, which aimed to help us to gauge readers' interest in the various contents of *British Birds*. The response was unprecedented, with more than half of the forms returned (compared with the usual 10% to 15% for such an exercise), amply demonstrating the loyalty to and interest in the future of this journal felt by its readers. The survey revealed that the *British Birds* reader spends an average of at least two days in the field each week and regularly refers back to past issues of the journal. Recognising that the majority of readers are amateur birdwatchers, Macmillan Journals Ltd are taking the unusual step of freezing the subscription price of *British Birds*. We feel sure that, like us, readers will appreciate this very welcome vote of confidence in the future of our journal.

While retaining variety of content, editorial policy will clearly be influenced by the knowledge gained from the survey; present readers have the greatest interest in papers on migration, identification problems, reports on breeding birds and status reviews, but find some of those on the biology of species and avian ecology too scientific for their taste. We also note that editorials were considered to be the least interesting of all items.

The present status of the Puffin in Britain and Ireland

M. P. Harris

INTRODUCTION

This paper details recent counts and estimates of numbers of Puffins *Fratercula arctica* in an attempt to determine whether or not the generally accepted overall decline in numbers of Puffins in Britain (Cramp *et al.* 1974) still continues. I have not attempted a complete survey of old records unless they seem relevant to present trends. As will be the case for all future assessments of British seabird populations, the base-line is the survey made in 1960-70 during 'Operation Seafarer'; unfortunately the large areas of coastline which had to be counted and the limited manpower resulted in most colonies being visited only once, so that the actual totals must be used with great caution. However, it is hoped that a general survey will show up any marked population trends since 1969-70.

Although among the most numerous and attractive of British seabirds, Puffins are very difficult to count: they breed on the most isolated and rugged islands and cliffs, the colonies are large and many burrows are inaccessible. The most accurate method of determining trends in population size is to count regularly the numbers of nesting burrows in areas where this is feasible. Such counts are only just beginning to yield results (see later) and the bulk of this survey is based on counts of individual birds.

The older literature includes many eloquent accounts of vast numbers of Puffins in some areas but many of these old and not-so-old subjective estimates do not stand up to careful scrutiny. However, there have been many well documented declines in numbers within the last hundred years (reviewed by Bannerman 1963, Parslow 1973, Cramp *et al.* 1974).

The numbers of Puffins seen at a colony in a single day can vary by a factor of a thousand. Thus, the majority of counts of birds made during single visits must be gross underestimates of the totals of birds attached to the colony. Further difficulty arises as it is often not clear whether a quoted figure is a single count or the maximum of several counts, whether of all birds at colonies and on the sea below the cliffs or, as most 'Seafarer' counts, only of birds ashore. It is not possible to convert counts of individuals to breeding pairs, although maximum counts of birds on the sea just offshore from colonies prior to breeding sometimes approximate to twice the number of occupied burrows. Most counts have been made late in the season and so include many immatures, which, exceptionally, breed in their third year of life but normally when one or two years

older. Many of these spend several years as pre-breeders at the colonies, the numbers present depending not only on weather and feeding conditions at the time of the count but on the breeding success and post-fledging survival two and more years before. Thus, even when the problems of counting large numbers of birds have been overcome, it is difficult to interpret figures. However, such counts are usually the only information which we have on the status of this species.

Quadrat counts

Permanently staked quadrats have been set up in seven Scottish colonies and the numbers of occupied (indicated by hatched egg

Table 1. Counts of occupied burrows of Puffins *Fratercula arctica* in permanently marked quadrats

Part of the Faraid Head colony was counted in 1976:
there were 52 occupied burrows where there had been 35 in 1972 and 33 in 1973

COLONY	Habitat	Area(m ²)		1971	1972	1973	1974	1975	Observers (pages 258-259)
		monitored							
Hermaness, Unst	Heavily grazed grass	378				182	199		UEA
Fair Isle	Heavily grazed grass, some erosion	1305			86	65	117	141	RAB, MPH
St Kilda (Dun i)	Ungrazed sorrel	270		208			188	200	EKD, SM, MPH
(Dun ii)	Ungrazed sorrel	4595					1179	1260	SM, MPH
(Hirta)	Heavily grazed grass	153		36			34	57	EKD, SM, MPH
Garbh Eilean, Shianta Is.	Heavily grazed grass	1440				532	564	655	CU, MPH
Isle of May (i)	Rabbit-cropped grass	396			0		34	53	MPH
(ii)	as (i)	6674							
(iii)	Very eroded, much bare earth, nettles	c.1400			200		284	436	MPH
Faraid Head, Sutherland	Grazed grass	1970			84	95			MPH

shells, droppings or excavations) and unoccupied burrows counted more or less annually. All the quadrats, usually three or six metres wide, run from one side of a colony to the other and, since they include central and peripheral parts of the colony where there are no burrows, are capable of detecting changes in colony size, as well as overall numbers and burrow density in the already occupied areas.

The results (table 1) show increases on the Isle of May and the Shiantis and no declines. In only one case, a quadrat deliberately placed to monitor changes in a very badly eroded bank on the Isle of May, was the 1975 count meaningfully lower than earlier ones. The small difference in the 1971 and 1975 counts from Dun could be due to a slight difference in area covered, as only one top corner of a 90×3 -metre strip running down a colony was permanently marked in 1971. The Shiantis results are from Garbh Eilean where the quadrats span, both horizontally and vertically, a colony which declined from 6,910 burrows (counted by line transects) in 1970 to 5,700 in 1971, 4,390 in 1972 and 3,210 in 1973 (Brooke 1972a, CU). Though the decline now appears to have been reversed, the rate of recovery may not be as great as the 16% increase between 1974 and 1975 suggests, as some of the new burrows were among boulders where it is difficult to count nests.

Burrow density

The density of occupied burrows is slightly higher than indicated in table 1 as the areas monitored include some places not used by Puffins; if these are omitted then burrow density is highest at Hermanes (0.59 per sq m) and lowest on the Isle of May (0.20) (table 2). In a few places on Dun, burrow density was as high as 1.7 per sq m, though even the densest colonies on that island averaged only 0.4-0.6 per sq m. These densities are similar to those found in many Norwegian colonies but far below those in some parts of Icelandic and Canadian colonies, which reach 3 to 4 per sq m and 2.8 per sq m respectively.

Surveys of recent counts

All 1969-70 counts were made during 'Operation Seafarer' and the figures are taken from the cards filled in by the observers. Other counts are from normal published sources (cited), the Scottish Bird Report (SBR), the Royal Society for the Protection of Birds/Seabird Group annual census of some colonies (RSPB), or unpublished sources (initials of observer). The survey was bedevilled by confusion of the counting units—were they individuals, pairs, occupied burrows? Even when counts were recorded as pairs they were in fact often of birds either expressed directly as pairs (many

Table 2. Densities of occupied burrows of Puffins *Fratercula arctica* in various colonies

It should be noted that maximum densities often occur in very small areas

COLONY	OCCUPIED BURROWS PER m ²		Source
	Maximum	Mean	
Hermaness, Unst	1.11	0.59	This study
Dun, St Kilda	1.7	0.4-0.6	This study
Soay, St Kilda	?	0.18	Brooke (1972b)
Garbh Eilean, Shiantas	1.56	0.52	This study
Eilean Mhuire, Shiantas	?	0.41	Brooke (1972a)
Brownsman, Farne Islands	?	0.69-1.35	M. H. Hornung (<i>in litt.</i>)
West Wideopens, Farne Islands	?	0.69-0.99	M. H. Hornung (<i>in litt.</i>)
Inner Farne, Farne Islands	?	0.62-0.66	M. H. Hornung (<i>in litt.</i>)
Sule Skerry, Orkney	?	0.85	Budworth & Blackburn (1975)
North Rona, Outer Isles	0.84	0.49	Evans (1975)
Isle of May, Firth of Forth	0.70	0.20	This study
Fair Isle, Shetland	0.67	0.11	This study
Faraid Head, Sutherland	0.19	0.03-0.06	This study
Westmann Islands, Iceland	?	3.0-4.0	Fridriksson (1975)
Ainov Islands, Russia	?	0.5-1.5	Stokova (1962)
Trenyken, Norway	2.72	?	Brun (1966)
Vacroy, Norway	0.80	0.01-0.48	Brun (1966)
Lovunden, Norway	?	0.2-0.4	Myrberget (1959)
Great Island, Newfoundland	2.80	1.3	Nettleship (1972)
Lamba, Faeroe Islands	?	1.74-1.84	Watson (1969), J. Dyck (<i>in litt.</i>)

'Seafarer' counts), on the assumption that only half the population is likely to be visible at any time, or calculated as pairs by dividing the figure by two. I have traced as many counts as possible back to the original counter and discovered what was actually counted; but in some cases this has proved impossible and I give the units as expressed in the report. Throughout this paper I have used *individual* birds unless pairs or burrows are specifically mentioned. Counts not presented in the text are given in an appendix (page 262). Following Cramp *et al.* (1974), order 1 is 1 to 9 pairs, order 2 10 to 99, order 3 100-999, order 4 1,000 to 9,999 and order 5 10,000 to 99,999 pairs.

SCOTLAND

Shetland. Venables and Venables (1955) mentioned Puffins as increasing in Shetland, and a partial survey in 1974 (Harris 1976) and other counts (see appendix) suggest that the increase continues.

The largest colony is in Hermaness NNR. In June 1965 Dott (1967) estimated about 9,000 pairs, but this figure was arrived at largely by impression and there were vast numbers of birds on both land and sea. Single counts in 1969 and in June 1974 gave 15,000



Fig. 1. The major British and Irish colonies of Puffins *Fratercula arctica*

and 11,500 birds respectively, but, at least in 1974, these grossly underestimate the population. In 1974 I visited Hermaness and the north coast of Unst east of Burra Firth and was impressed by both the extent of the colonies and the numbers of birds present. Time did not allow a census but the area may have as many Puffins as St Kilda, and certainly more than the 50,000 pairs given for the whole of Shetland by Bourne and Dixon (1974). Between 1973 and

1974 the number of occupied burrows in transects increased slightly (table 1). Lighthouse keepers also report an increase in Puffins on the skerries off the north of Hermaness.

The height and extent of the cliffs at Foula make it virtually impossible to count Puffins: they were thought to have increased in the 1950's but numbers declined again in 1962-63 (Jackson 1966); 'Seafarer' suggested order 5, probably 30,000 to 40,000 pairs, but J. Holbourn (*in litt.*) put the figure at 50,000; Brathay Exploration Group Report (1971) noted a decrease in one area between 1969 and 1971, but islanders thought the species was far more numerous in 1971. The population is still extremely large and increases have been noted in some of the smaller colonies (ARM).

No satisfactory count was made at Sumburgh Head in 1969-70, but there were 1,750 pairs in 1967 (MC) and local people said that the colony was declining; in 1974 I estimated 4,500 to 5,500 birds, and I doubt that the cliffs are suitable for more pairs to breed. There are three recent counts of birds on Noss, 1,100 in 1969, 1,765 in 1974 and an incomplete count of 2,000+ in 1973 (PKK), but R. J. Tulloch suggests that the population may be as great as 3,000 pairs. The colony on the Clett of Fetlar was estimated at 1,000 to 2,000 pairs in 1969 and 1970, and there were a further 1,000 pairs scattered around the rest of the island. Several of the Out Skerries islands support small colonies, which totalled 296 birds in 1970 and 225 pairs in 1974 (ISR). The population on Fair Isle has increased this century (Williamson 1965), and, considering the difficulties in counting the area, the 1969 estimate of 15,000 pairs is not meaningfully different from Williamson's (1965) figure of 20,000 pairs; both local opinion and the transect burrow counts suggest that the increase continues (RAB). Apart from 1,000 to 2,000 birds on Uyea, all the other Shetland colonies are fairly small and the few recent counts tend to be higher than those in 1969-70.

Orkney. Balfour (1968) thought that the Orkney population had declined but there is no further evidence for such a change.

About 60,000 pairs and 47,000 occupied burrows were counted on isolated Sule Skerry in 1967 and 1975 respectively (Stark 1967, Budworth and Blackburn 1975). Sampling errors and the calculation of colony area from a small-scale map could easily explain this difference. The five ha suitable for burrowing are already fully utilised, so the colony cannot become larger. On Orkney proper, the main concentrations of Puffins are near St John's Head (estimated as order 4 in 1969 but extremely difficult to count owing to the height and aspect of the cliffs), and on Swona, where there were 500 birds in 1969 and 439 in 1974 (KH). Most of the remaining colonies are small and widely dispersed. More birds have been reported from Papa Westray, Westray and Copinsay since 'Seafarer',

and breeding on Gairsay in 1975 probably represented a new colonisation (AA).

Highland Region. There are colonies on many of the cliffs from the northern Sutherland-Caithness border eastwards to Ord Point, with the largest (order 4) colonies at Duncansby Head, Ceann Leathad, near The Neback, actually at the border, and Dunnet Head; all badly need to be counted as the available figures are little more than guesses yet total about 20,000 pairs. The population at Duncansby Head was reported as declining in 1972 and 1973, while there may have been a general slight increase in birds at the Caithness colonies in 1974 (SBR). It has been said that the largest British mainland colony, at Clo Mor (order 5 in 1969), has seriously declined in the last 20 years (Cramp *et al.* 1974, SBR); this conclusion was, however, only a general impression based on a comparison of figures from a two-week stay in 1950 with those of a single afternoon's visit in 1971 (IP) and must, therefore, be treated with reserve. I did not notice any great change between visits in 1959 and 1972, nor had the population obviously altered between 1971 and 1975; it is probably in the region of 25,000 to 50,000 pairs (JLFP). Puffins breed only at low densities at the eastern end of Clo Mor near the military gunnery range, despite the availability of apparently suitable habitat. As Puffins here are disturbed more than other seabird species during the annual summer bombardments it is conceivable that the colony may have contracted because of these activities (JLFP). The nearby Faraid Head colony was put at about 600 pairs in 1969, but a careful count in 1971 showed 1,800 occupied burrows (Evans 1971). On Handa Island numbers have probably remained at 450 pairs from 1959 (Dickinson and Harris 1960) to 1974, though only 307 birds were counted in 1970 (SBR). The colony on Am Balg was previously larger than the two 'Seafarer' estimates of 125 burrows and 750 pairs, but the timing of the decline is unknown (Parslow and Bourne 1972). Similarly obscure is the timing of declines at colonies on the Ascrib Islands and Fladda-chuain off Skye, whose populations totalled only 250 pairs in 1969-70. A gradual reduction in numbers on Rhum still continues, despite an increase in one colony between 1969 and 1971: in the 1950's between 300 and 1,500 pairs bred but by 1960 there were only 100 pairs (Evans and Flower 1967); in 1974 there were 60 pairs on the island (PC). There has, however, been a sustained increase on the neighbouring island of Canna with maximum counts of 1,200 birds in 1962, 1,350 in 1971, 1,800 (including two new colonies) in 1974, and 1,400 in 1975 (Evans and Flower 1967, AU). The recolonisation of Eigg in about 1926 lasted until at least 1934 but no birds were seen in 1953 (Evans and Flower 1967). The only counts for Muck were 170, and 60 burrows plus 20 birds, in

1963 and 1969 respectively.

Strathclyde Region. All the colonies on the Treshnish Islands have increased; there were at least 1,863 individuals on Lunga in 1974 (BL) compared with two counts of 650 and 1,673 birds in 1969. A count of Staffa made from the sea in 1969 produced only 70 birds, but there were about 200 and about 250 pairs in 1972 and 1974 respectively (CPA). Following a decline in the early 1900's, the Ailsa Craig colony was almost deserted by 1934; an increase to 246 pairs in 1950 (Gibson 1951) was shortlived and the population was 17 to 20 pairs in 1969, 22 pairs in 1971 (SBR), eight pairs plus twelve other birds in 1974, and a few more in 1975 (SW). The only other well established colonies in the area are on Sheep Island and on Glunimore in the Sanda Group (Gibson 1969 and *in litt.*). Glunimore was colonised about 1920, the population reaching a peak of 200 pairs in 1955 before declining to 125 pairs in 1969 and 150 pairs in 1971. The colony on Sheep Island increased from a few pairs in the 1920's to 200 pairs in 1964, before declining again to 100 pairs in 1969 and 120 in 1971. There are also a few on the Mull of Kintyre—ten pairs in 1956, twelve pairs in 1968, none in 1970, a few birds in 1971 and 1974 (Gibson 1969), Iona, Jura and Islay.

Western Isles. Several visitors to North Rona in the first half of this century remarked on the vast numbers of Puffins there, but by the time of the first count, in 1958, the population numbered only 8,000 pairs (Dennis and Waters 1962). An apparent reduction in colony area had occurred by 1966 (Robson 1968), and a further one by 1972 when there were 6,200 pairs (Evans 1975). The decline in numbers on neighbouring Sula Sgeir between 1932 and 1949 was possibly due to soil erosion (Atkinson 1949); in 1972 there were about 460 pairs (Evans *in press*). On the Flannan Islands 5,000 out of the 6,000 individual Puffins counted in 1969 were on Eilean Mor; in 1975 there were about 4,000 active burrows occupying more or less the same colony area as in 1969, and many more Puffins were seen standing on nearby Eilean Tighe (PGH, SM, RP).

St Kilda has probably always held the largest British Puffin colonies but it is difficult to interpret past counts. Flegg (1972) has given reasons for supposing a very considerable decline in the period 1969-71, but this has now slowed down if not stopped on Dun and Hirta, where transect counts have remained more or less constant since 1971 (table 1). Preliminary results from 1976 confirm this. The number of occupied burrows on Dun was estimated at 33,800 in 1969 (GWVB), 7,000 to 20,000 in 1971 (Flegg 1972) and 35,000 to 40,000 in 1975 (MPH, SM), but these estimates were obtained by slightly different methods and so are not directly comparable. On Hirta the extent of the colonies has altered little since 1968 (HEMD, MPH). Brooke (1972b) mapped the colonies

on Soay and Boreray in 1971 and estimated a maximum of 77,000 occupied burrows on each island. I made short visits to both areas in 1975 and the colonies were still thriving. The population of the St Kilda group is probably in the region of 100,000 to 150,000 pairs and the evidence available suggests that the previous decline has halted, at least temporarily.

The 1975 count of 5,700 pairs of Puffins on Mingulay (SHS) is far higher than previous estimates of about 1,500 pairs in 1962 (RJD), 3,379 birds in 1964 and 1,080 pairs in 1969 (Diamond *et al.* 1965). Puffins on the neighbouring Berneray and Pabbay have not been counted recently but the former had 330 birds and 273 birds in 1964 and 1969 respectively, the latter 87 birds in 1964 (Diamond *et al.* 1965). Haskeir was not visited during 'Seafarer' but there were about 50 pairs in 1953 (Roberts and Atkinson 1955). Elsewhere in the Outer Isles the species breeds on Coppay, Gasker and Causamul but the total population is less than 100 pairs.

The recent decline in numbers on the Shiantis has been documented by Brooke (1972a), although it is not known when it started; in 1970 there were thought to be about 77,000 occupied burrows, but the numbers declined by 20% in each of the next two years. The downward trend appears to have been reversed on Garbh Eilean (earlier). The colony on nearby Eilean Mhuire crashed from 15,000 pairs in 1970 to 7,000 pairs in 1971, followed by a more gradual decrease to 5,700 pairs in 1973 (Brooke 1972a, CU); no counts have been made since but large numbers of birds were present in May 1975 (CKM) at a time when only non-incubating adults would have been standing around the colony.

Grampian, Tayside, Fife, Lothian and Border Regions. Relatively small but increasing numbers of Puffins occur on most suitable coasts and islands from Troup Head south to St Abbs Head. The principal mainland colonies are Troup Head, near Downies (about 50 pairs in 1965, about 300 pairs in 1974, RR), Foulshough (about 100 birds in 1969, 236 in 1975) and Lud Castle. Much larger increases and new colonisations have occurred on the islands in the Firth of Forth (see appendix), the most spectacular on the Isle of May—from five pairs in 1959 to 2,969 occupied burrows in 1975 (figures of 2,500 pairs in 1969 and 3,000 to 4,000 pairs in 1972, Eggeling 1974, were inflated by the inclusion of rabbit burrows). Ringing has shown that part of this increase is due to immigration of young birds from the Farne Islands.

Dumfries and Galloway Regions. Fewer than ten pairs breed at Burrow Head, Mull of Galloway and Scar Rock.

ENGLAND

Most southern colonies are mere remnants of once large ones

and numbers of birds present are still declining. Colonies in the north-east are expanding in association with similar changes in eastern Scotland.

Cumbria. There has been a slight increase in the number of birds at St Bees Head, from seven in 1969 to 20 in 1975 (JS).

Northumberland. The numbers on the Farne Islands have increased steadily since the early 1900's (Watt 1951), recent counts of pairs being 6,800 in 1969, 11,336 in 1971, 12,926 in 1973, 13,363 in 1974 and 13,600 in 1975 (MH, NNHS); redistribution of the Puffins between the various islands has occurred because of soil erosion, caused, at least in part, by the birds themselves (GH). A similar increase has occurred on Coquet Island, where birds were first seen ashore in 1962 and the first record of a bird entering a burrow was in 1964; fish were first recorded being brought ashore in 1966 (JCC). There were 400 birds in 1969, 300 to 350 burrows in 1971, 350 burrows in 1972, 700 to 800 burrows in 1974 and 635 burrows in 1975 (Dunn 1972, RSPB). The apparent decline from 1974 to 1975 is due to a more rigorous definition of 'an occupied burrow' (RG).

Humberside. Numbers of Puffins at Bampton and Flamborough Head declined between 1906 and 1952, though there was a report of a slight increase in 1945 (Chislett 1952). In 1969 and 1974 these colonies held a total of 997 and 2,635 birds respectively. An incomplete survey in 1975 found 1,791 birds, where there had been 812 in 1969 and 2,059 in 1974 (RSPB).

Isle of Wight. There has been a steady decrease in numbers since 1923. There were 300 to 350 birds in 1937 (Cohen and Taverner 1972) but the largest recent count was of 20 birds in 1968. A very few pairs may still breed near the Needles (JHT).

Dorset. Between four and ten pairs still nest at Portland Bill (ISR). Numbers in the eastern part of the county have gone from 35 pairs in 1964 to 19 pairs in 1974 and 17 pairs in 1975 (Hayson 1975).

Cornwall. Numbers had decreased greatly on the mainland by 1948 (Ryves 1948), and only 226 birds were seen in 1969. Of these 112 were on Lye Rock, where there had been 3,500 birds in 1942 and 200 birds in 1967 (Penhallurick 1969); in 1973 only 24 were counted on this rock (CBWSR). A decline on the Scilly Isles started soon after 1908, when about 100,000 birds were noted. There were still thousands of birds present in 1924, but only 60-100 pairs were found in 1967 and the population has remained small ever since (Penhallurick 1969). The latest counts, in 1974, are 53 to 57 pairs on Annet and 34 elsewhere (Allen 1974).

Devon. On Lundy there were 3,500 pairs in 1939 and 400 pairs in 1953 (Davis 1954), 41 pairs in 1969, 164 birds (with just one seen carrying food) in 1972 and 100 birds in 1973 (LBO).

Isle of Man. In recent years the Calf of Man colony has increased from 14 pairs in 1967 to 30 pairs in 1974 and 100 birds in 1975 (CMO). Elsewhere on Man there were about 35 pairs in 1969 (Cullen and Slinn 1975).

WALES

All colonies have declined this century but most populations are now stable.

Gwynedd. The colony on Ynys Gwylan-fawr was estimated at 450 to 500 pairs in 1958 (Bannerman 1963), 400 pairs in 1966 (RST) and about 500 birds in 1969. It has not been counted since but there appear to be fewer birds when viewed from the mainland (RST). In 1961 15 to 20 pairs bred on Ynys Gwylan-fach, but no birds were seen there in 1968 (BBO). The once-large population on St Tudwals was thought to be extinct by the early 1950's, but four birds were seen offshore in 1967. Occasional pairs regularly seen on the Great Orme probably breed there (Hope Jones and Dare 1976).

The colony on Puffin Island, Anglesey, has varied greatly over the years: fewer than 50 pairs in 1903 and 1911 but 2,000 pairs in 1907 (Forrest 1919), 300 to 400 pairs in 1960 (MPH), 100 individuals in 1969, 141 pairs in 1971 (GW), and 400 to 500 birds since then (RW). In recent years increasing numbers of birds have been seen at small colonies on the Skerries and near Holyhead (RWA).

Dyfed. In 1946 Buxton and Lockley (1946) estimated 50,000 pairs, but there were only 7,000 pairs in 1963 (DRS) and 1971 (PC). The population is now more or less stable at 5,200 to 6,500 pairs (Birkhead and Ashcroft 1975). Skokholm's population was estimated at 40,000 birds breeding in 1930 (Lockley 1953), 5,000 to 10,000 pairs in 1953 (Conder 1953), 6,000 pairs in 1955 (Dickinson 1958) and 2,500 pairs in 1969 and 1971. Grassholm was once among the largest Puffin colonies in Britain (Drane 1894) but the top of the island collapsed through soil erosion before 1928 (Lockley 1953) and only very few birds are seen now, though some probably breed. Other colonies, such as St Margaret's Island, Middleholm, South and Middle Bishop, total only a few hundred pairs. The colony on Cardigan Island (25 to 30 pairs in 1924) had died out by about 1930 (Ingram *et al.* 1966).

West Glamorgan. A few Puffins frequent Worm's Head but breeding was last proved in 1963 (RJH).

IRELAND

This population was probably increasing at the end of the last century but a general decrease was noted between 1925 and the early 1960's (Kennedy *et al.* 1954, Ruttledge 1966). In some colonies the decline continued until 1969 but may now have stopped.

Co. Wexford. Numbers on Great Saltee decreased between 1912 and 1930 and, apart from a doubling between 1943 and 1949, this decrease continued into the 1950's. A slight increase was detected during 1960-64, and since 1965 estimates have fluctuated between 400 and 1,050 birds, but there is no significant trend. Neighbouring Little Saltee held about 25 pairs in 1969. (Details from Cabot 1976.)

Co. Cork. Cape Clear Island had 30 pairs in 1963, 13 pairs in 1967, and ten to twelve pairs in 1969 and 1975 (Sharrock 1973, KP). In 1970 the colonies on Bull and Cow Rocks were estimated at 200 pairs and order 3 respectively (PGHE).

Co. Kerry. The history of Puffins at the Blasket Island colonies has been documented by Evans and Lovegrove (1973). The biggest changes have been on Inishtearaght, whose colony declined from 20,000 to 30,000 pairs in 1968 to 7,500 pairs in 1969 but has since remained at about this size; and on Great Skellig, where there was a significant reduction between 1973 and 1975. Soil erosion is occurring at these and some of the other colonies and declines can be anticipated. The small numbers breeding on Great Blasket disappeared between 1933 and 1953. The timing of a reduction on Little Skellig is not known, though the reason may be the increasing number of Gannets *Sula bassana*. Against these losses can be put small increases on Puffin Island (5,000 to 7,000 pairs between 1967 and 1973) and Inishnabro, the nearest colony to Inishtearaght (116 pairs in 1966, 500 in 1969, 600 in 1973).

Co. Clare. In 1969 646 individuals were seen ashore along the five km length of the Cliffs of Moher area, but at the time this was thought to be an underestimate. More recent observations have suggested probably at least ten times this number (CSL).

Co. Mayo. Two thousand pairs bred at Illaunmaistir in 1966 and 1969 (JK) and about 5,000 birds were seen offshore in 1970 (OJM), but far fewer birds were recorded in 1975 (CSL). The Bills Rock colony has not been censused since 1967, when there were 1,900 pairs (Cabot 1967). Clare Island, Stags of Broadhaven and Blackrock totalled 1,700 pairs in 1954 (PSR) but held far fewer in 1969.

Co. Donegal. There are Puffin colonies on Tory Island (711 birds in 1970), Horn Head (250 birds in 1969) and at Tormore (about 1,000 pairs in 1970); small numbers also nest at a few other places. No Puffins were seen in 1969 at the site of a previous colony at Aranmore.

Co. Antrim. The main colony, on Rathlin Island, had 2,200 pairs in 1967, 817 pairs in 1969 (including 300 pairs in one stretch of cliffs where there had been 1,350 pairs in 1968) and 1,364 pairs (maximum head count 3,000 to 5,000 birds in June) in 1974 (PSW). A partial count in 1975 resulted in 1,067 birds where there had been 520 pairs estimated in 1974 (SW). Small numbers nest on Muck

Island, The Gobbins, Carrick-a-rede, Sheep Island and Larrybane (JG, PSW).

Co. Dublin. Colonies on Lambay Island and Ireland's Eye were counted from the sea and appeared to have declined to 100 pairs in 1970 and eight birds in 1969 respectively, representing a tenth of the 1939 estimates (Lockley 1953).

CHANNEL ISLANDS

Most Puffins nest on Burhou where, following a decline from tens of thousands of birds in the early 1950's, the population has remained stable from 1969 to 1974 at about 1,000 individuals (Dobson 1952, RB). A similar decline this century and a possible levelling off in recent years are recorded for Jersey (ten pairs in 1969, 30 to 40 birds present and 14+ young being fed in 1974, Jones 1975); Herm and adjacent islets (twelve pairs plus 64 birds in 1969 but fewer since); and Sark (25 pairs in 1969) (RB).

STATUS ELSEWHERE

Brittany. By far the largest French Puffin colony is at Sept-Îles, where there were 10,000 to 15,000 pairs at the end of the last century, 7,000 pairs from 1927 to 1950, then a gradual reduction to 2,500 pairs in 1966. Following the *Torrey Canyon* oil spill in 1967, the population fell to 400 to 500 pairs in 1969 and remained there until a further small decline to 350 to 400 pairs in 1973. The other colonies are at Cap Sizun (two to five pairs 1938 to 1973); Presqu'île de Crozon (60+ pairs in 1930, three to six pairs in 1973); Archipel de Molène (130 pairs in 1930, 30 to 60 in 1967, 12 to 13 in 1973); Ushant (less than 20 1956-71); Baie de Morlaix (13 to 15 pairs in 1970, 25 pairs in 1975); with possibly a couple of pairs at Cap Fréhel. Small numbers previously nested on Archipel d'Houat and Archipel de Glenan. (Information supplied by Y. Brien.)

Faeroe Islands. Earlier this century there were large declines, attributed in several cases to Brown Rats *Rattus norvegicus* on larger islands. In recent years, however, the populations appear to be holding their own; only close to villages have declines been noted, presumably owing to persecution. There have been two estimates of the colony at Lamba on western Mykines: 29,000 burrows (1.74 burrows per sq m, Watson 1969) in 1967; but 19,000 pairs in 1972, mainly because the area of the colony was estimated at only 10,262 sq m, the burrow density being 1.84 per sq m. However, J. Dyck, who took part in the latter count, doubts that this is a true decline, rather that it may be due to inaccurate measurements of the area of the colony. The population is estimated at 400,000 to 1,000,000 pairs (J. Dyck *in litt.*).

Iceland. The biggest concentration of Puffin colonies in Iceland is

on the Westmann Islands, where the population is estimated at 2 to 3 million birds. From about 1850 until 1870 it declined drastically (Jonsson 1896) owing to the use of nets spread over burrow entrances to catch breeding birds. About 1870 this practice was banned and around 1875 the 'fleygastong' (a large type of landing net catching mainly non-breeding birds flying around the colonies) was introduced from the Faeroes; an increase in numbers soon resulted (Jonsson 1896) and the population has probably remained stable since. The second biggest Puffin area is in the Bay of Breidifjörður in the north-west, where the population seems to have increased in the last decades, but this is probably a return to former levels because of less persecution of breeding birds in recent years.

The total population is probably now in the order of 8 to 10 million birds. Lockley (1953) gave 5 million birds for Iceland but this may well have been an underestimate as it was based on only a single visit to the Westmann Islands. The overall impression is that no general decline has taken place in recent years; if there has been any change it is likely to have been an increase. (Information supplied by A. Petersen.)

Sweden. During the 1950's and 1960's a few pairs bred on two small islands off the coast of Bohuslän. The last breeding record was of a single pair in 1970. Since then there have been only a few sight records of Puffins in that area (S. Hedgren *in litt.*).

Germany. The Puffin is now extinct, though up to 1835 small numbers bred on Helgoland.

Norway. The species breeds at 29 sites with a total population estimated at $1\frac{1}{4}$ million pairs. Over half are on the island of Røst in the Lofotens and a further quarter at eight other colonies; there is no firm evidence of any change (Brun 1976).

USSR. Dement'ev *et al.* (1951) gave the distribution as follows: 'In USSR, large colony of Puffins—about 20,000 pairs—inhabits Ainov Is. Largest colony on Sem Ostrovov Is. is located on Bolshoi Zelenets I., numbering over 500 pairs. Puffin population on Novaya Zemlya small—about 70 pairs at Bezymyannaya and Gribovaya bays. This bird doubtless merits protective measures'. A survey of the eleven colonies on the Murmansk coast in 1950 put the population at 16,244 pairs, whereas in 1960 it was 36,000 Puffins (though whether birds or pairs is not clear). The colony on Ainov Major and Ainov Minor was put at 20,000 pairs in 1928, 11,000 pairs in 1947, 5,500 pairs in 1950, 1,500 pairs in 1957, 11,000 pairs in 1958 and 11,980 pairs in 1960 (Skokova 1962).

Jan Meyen. The population is small, probably a few hundred pairs (R. Moss *in litt.*).

Spitsbergen. The Puffin is nowhere very numerous, breeding in single pairs or in small colonies numbering not more than a few

hundred individuals. No estimate is available but, as only 27 colonies are known, the total population must be small (Løvenskiold 1964).

Bear Island. In 1970 the population was estimated at less than a few hundred birds (Williams 1971). Apparently it has never been a numerous species (Løvenskiold 1964).

Greenland. The Puffin has always been a rare bird, never occurring in large colonies like those in the boreal regions (Salomonsen 1950). On the west coast colonies are scattered and the total population can only be a few thousand pairs (details of colonies in Brown *et al.* 1975). On the east, Puffins occur only near Scoresby Sound, but there are only two records totalling four birds in recent years and no evidence of nesting (de Korte 1973).

Complete protection was afforded to the species in 1960 to prevent the destruction of nest burrows by egg collectors. Since then the populations on two skerries in the Bay of Disko on the west coast have increased from 200 and 100 pairs to 1,000 and 500 pairs respectively (F. Salomonsen *in litt.*). Further north, although the law is not strictly enforced, the populations at four colonies, Horse Head, Kingigtuarssuk Middle, Torquussôrssuk and Nôrdo, changed little between 1965 and 1974 (PGHE).

Eastern Canada and New England. The centre of the Atlantic Puffin's breeding range in North America is along the east coasts of Newfoundland and Labrador. The total population is estimated to be about 317,000 breeding pairs: 71% nest in four colonies in Witless

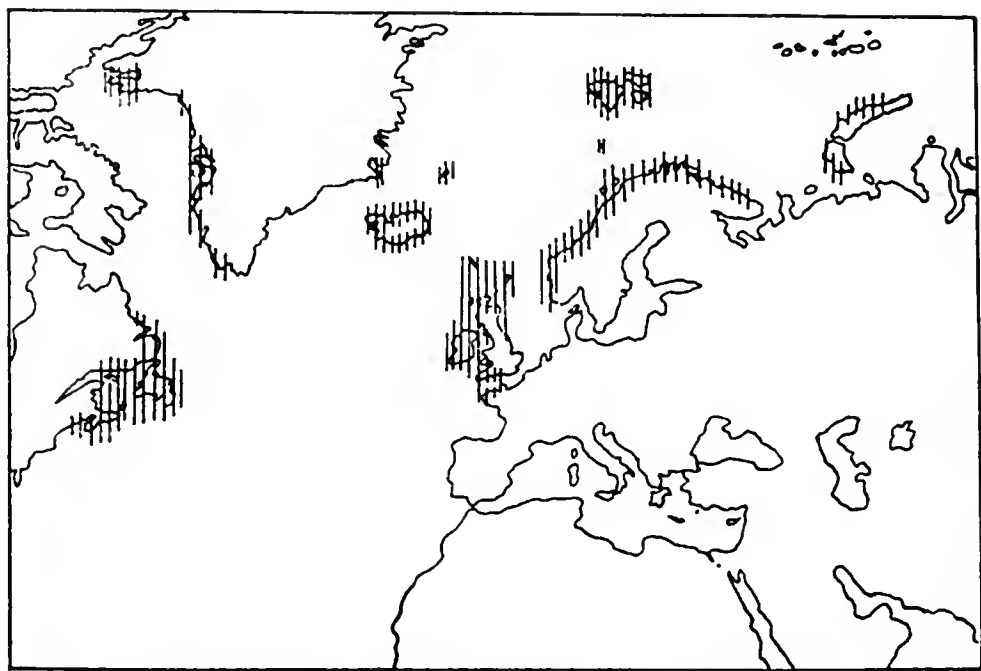


Fig. 2. Breeding distribution of the Puffin *Fratercula arctica*

Bay, Newfoundland; 20% in south-east Labrador; and almost all the rest in the Gulf of St Lawrence (Brown *et al.* 1975). The little information available from earlier times suggests that populations in the Gulf of St Lawrence, Nova Scotia, New Brunswick and Maine have declined considerably in the last 50 years, whereas there may have been a slight but noticeable increase in the colonies off Labrador. (Information supplied by D. N. Nettleship.)

WORLD POPULATION

The best estimates of the sizes of the various Puffin populations are given in table 3. The nomenclature and geographic divisions follow Salomonsen (1944), although there may be no sharp division between the races in Norway (Pethon 1967). No attempt is made to have a consistency of units as any conversions would compound the errors. The actual figures are little more than calculated guesses and are not meant to be treated literally but rather as orders of magnitude. However, they do put the various populations into perspective. The high-arctic, very large-billed race *F. a. naumanni* is obviously a rare bird compared with the much smaller southern

Table 3. Estimates of the orders of size of various populations of Puffins
Fratercula arctica

Details of sources are in the text		
	Place	Probable population size
<i>F. a. grabae</i>	Scotland	<i>c.</i> ½ million pairs
	Ireland	20,000-25,000 pairs
	England	<i>c.</i> 15,000 pairs
	Wales	8,000-10,000 pairs
	Isle of Man	<i>c.</i> 200 birds
	Channel Isles	<i>c.</i> 1200 birds
	Brittany	400-450 pairs
	Southern Norway	<i>c.</i> 200 pairs
	Faeroe Islands	400,000-1,000,000 pairs
<i>F. a. arctica</i>	Western Greenland	few thousand pairs
	Iceland	8-10 million birds
	Canada and	
	United States	<i>c.</i> ½ million pairs
	North Norway	1½ million pairs
	Bear Island	few hundred birds
	Jan Meyen	few hundred birds
	Russia	?20,000 pairs
<i>F. a. naumanni</i>	North-west Greenland	
	(Thule area)	six small colonies
	Eastern Greenland	very few
	Spitzbergen	5,000-10,000 birds
	Novaya Zemlya (? this race)	few

race *F. a. grabae* and the intermediate *F. a. arctica*. The Iceland population of the last subspecies must be many times larger than all other populations combined. Lockley (1953) estimated the total world population as not less than 500,000 breeding adult *F. a. naumanni*, 5,600,000 *F. a. arctica* and 9,125,000 *F. a. grabae*, which gives a total similar to mine. However, this overall agreement is probably a matter of chance, and some data are so subjective that little can be gained by more detailed comparisons.

Since the Puffin is probably the commonest seabird in the North Atlantic, it is odd that the main wintering grounds are still unknown. Presumably the many millions of birds must be very dispersed throughout the ocean during the non-breeding season.

PRESENT STATUS IN BRITAIN AND IRELAND

While there have been dramatic decreases in the numbers of Puffins at many colonies during this century, the present survey suggests that the overall decline may have halted, at least temporarily. As stressed earlier, care must be taken in the use to which any individual count is put but, even so, the apparent increases well outnumber the apparent decreases. This could be an artifact caused either by recent observers reporting only large counts, dismissing small counts as having been made on 'off-days' when the birds were not congregating at the colonies; or by the recent counts being maxima of several counts, whereas older counts, especially those in 'Seafarer,' were one-off estimates. However, many of the increases have been so large and/or in well-studied colonies that I think that the trend is genuine. The few recent apparent declines have been mostly in the small colonies at the southern edge of the species' range, for example the Channel Islands, Brittany, southern England (fig. 3). (On the other side of the Atlantic, the most southerly populations, in New England, increased steadily from near-extinction in the early 1900's but it is not clear whether the increase has continued after the late 1950's, Drury 1973.) Against this the more northerly populations, including those in Scotland, are flourishing.

A survey of the literature does not allow the construction of even an approximate timetable of past declines. Even in the best documented colonies it is impossible to guess either when the decline started or when the greatest drop in numbers occurred. Many factors have been implicated in specific declines—increases in numbers of Great Black-backed Gulls *Larus marinus* on North Rona and Annet, of Herring Gulls *L. argentatus* on Puffin Island, Anglesey, of Great Skuas *Stercorarius skua* on Foula, of Gannets on Sula Sgeir, Rats on Lundy, Shiant and Ailsa Craig, and soil erosion caused by the birds themselves on Grassholm, parts of the Farne Islands and

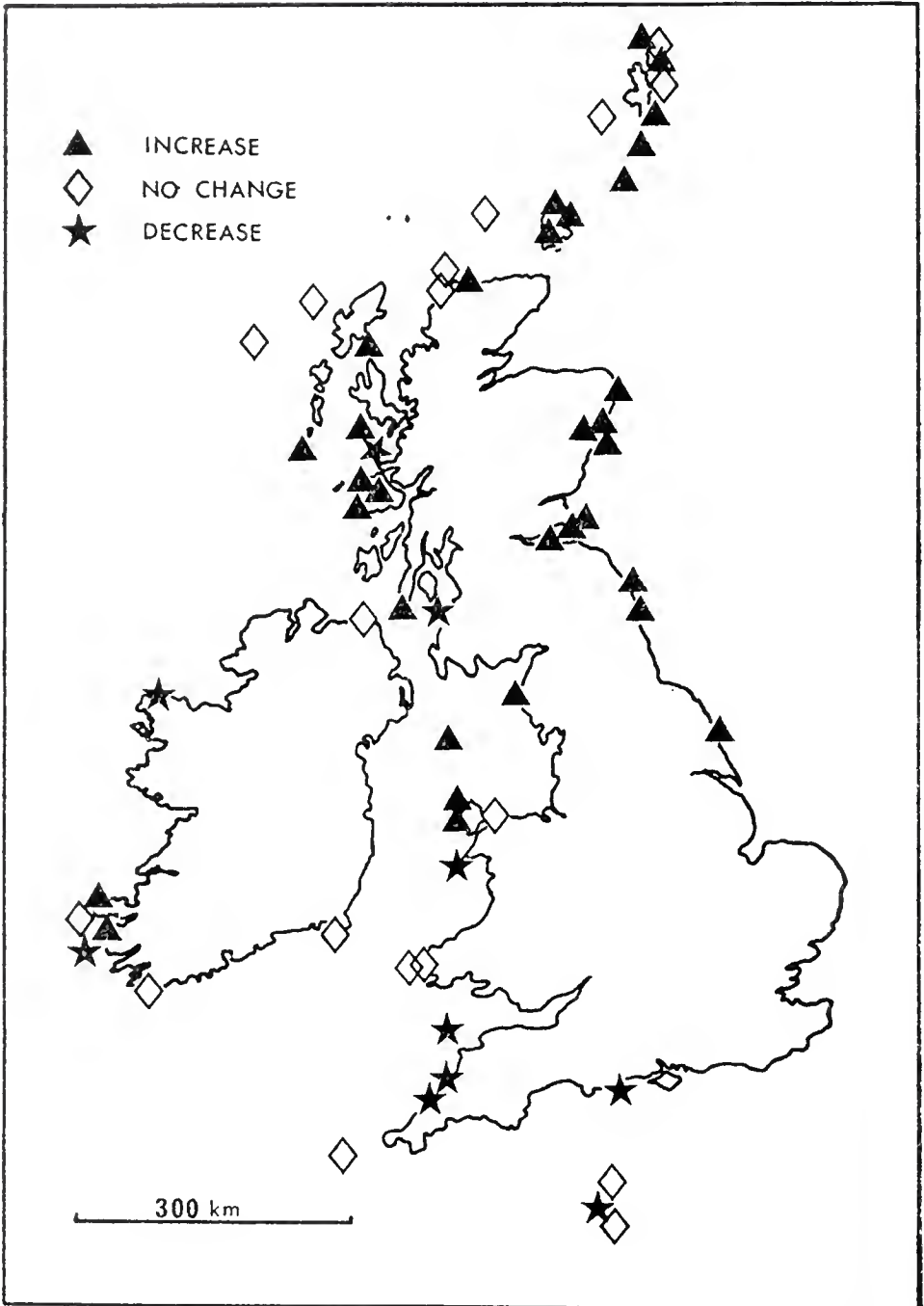


Fig. 3. Recent changes in some British and Irish colonies of Puffins *Fratercula arctica*

of the Isle of May (table 1). However, in a few cases all such obvious causes of decline can be ruled out. The most puzzling instance is St Kilda. The human inhabitants killed large numbers of Puffins for food and their feathers yet the Puffin population declined after the St Kildans evacuated the island in 1930 (Flegg 1972). There are no Rats on these islands, nor has there been a large enough increase

in numbers of predatory gulls to explain the reduction. For the past decline in many British populations there has probably been some primary common factor responsible, whose effect has been accentuated by the various secondary influences mentioned above.

Despite earlier concern, contamination by pollutants appears not to be an important cause. Most birds have low levels of toxic chemicals and heavy metals (Parslow *et al.* 1972), while many declines took place before pollutants became a serious threat to the environment. Although there are few quantitative data available, Puffins appear to suffer less from oil contamination than do other auks. Lockley (1953) suggested that certain climatic changes might have resulted in a reduction of the species' food supply, but Cramp *et al.* (1974) thought such changes unlikely to be implicated in the recent declines in northern Britain. My view, based on studies continuing on St Kilda, agrees with that of Lockley, that changes in the marine environment are likely to have affected the Puffin's food supply, possibly during the breeding season. Southward *et al.* (1975) have shown that, despite short term fluctuations approximating to a six-to-eleven-year cycle, the sea off southern England is getting colder. The peak sea temperature of a long-term cycle was reached in the 1940's or 1950's, and it has been falling since about 1960. They predicted that this gradual cooling-off should continue until 1990 or later and will result in increases in the abundance of cold-water marine species. Indeed, such changes are already apparent with the return of some fish, such as cod and haddock, to certain areas. Some British populations of Guillemots *Uria aulge* are now increasing (Lloyd 1975, Harris 1976) and it may not be a coincidence that Puffins also seem to be coming upon better times.

THE FUTURE

Regular monitoring of Puffin colonies on St Kilda, the Shiant, Hermaness, Faraid Head and the Isle of May is to continue as part of the Institute of Terrestrial Ecology's research into the species. Study plots are also in position on North Rona (PHGE) and the Flannan Islands (PGH, SM), and other workers are following colonies on the Blasket Islands, Farne Islands and Skomer. Together these give a good geographic coverage of the bulk of the British population, though it could be expanded to include smaller ones.

All these quadrats are in grassy areas, but many birds have their nest sites out of reach among boulders. Such colonies are sometimes of considerable size—one on Garbh Eilean, Shiant, has been estimated at 43,000 pairs (Brooke 1972b)—and it is possible that population trends there are different from those in grassy areas. Attempts have been made to estimate the size of these boulder

colonies by comparing the numbers of birds seen carrying fish into the area with similar measurements made at the same time in nearby grassy sites with a known number of occupied burrows. However, breeding may be several weeks out of phase in different colonies and even within a single one (Hornung and Harris in preparation), and the numbers of loads of fish brought depend on the age of the young (R. Ashcroft *in litt.*). Comparisons between colonies, even those close together, may not be valid unless the breeding seasons and nesting successes are similar. It is rarely possible to check this, and unrealistic to expect accurate counts of pairs in boulder areas.

The difficulties of interpreting counts of birds have already been stressed, but these counts are all we can hope to get in many colonies where burrows are inaccessible. They are made on an annual basis in several places, such as Handa and Bempton. To be of greatest use they should be undertaken several times a year and comparisons made between the annual maxima in spring or late summer. The most useful are those made early in the season, when breeders first return to the colonies and congregate on the sea below. In most of Britain this is in mid- to late April but in eastern Scotland the season is three to four weeks earlier. Unfortunately few people visit colonies at this time. The late counts include breeders and immatures and bear only a complicated and ill-understood relationship to the number of breeding pairs. However, if they are made several times a year during approximately the same weeks, annual comparisons of maxima are still possible. Whenever counts are made it is imperative to record the time (evening or very early morning always give the highest counts), weather conditions and, separately, the numbers of birds on land and on the water. Actual counts should be expressed as individual birds, and if any attempt is made to convert to pairs the method used must be explained in detail.

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PLATE 29. Adult Thrush Nightingale *Luscinia luscinia* standing on edge of nest as young beg for food, Denmark, July 1965. pages 265-271 photo: Ib Trap-Lind



PLATE 30. Adult Thrush Nightingale *Luscinia luscinia* at nest, Schleswig-Holstein Germany, June 1970 (photos: N. W. Orr). Above, with caterpillar for young two-three days old (not visible in photograph); below, note the whitish markings on the crown, nape and mantle, a character found in most adult individuals





PLATE 31. Above, approaching the nest from within cover, the parent Thrush Nightingale *Luscinia luscinia* raises and fans its tail as it bends forward towards its young. Below, still with a caterpillar in its bill, the adult pauses warily before releasing the food; both parents feed the young (photo: A. W. Orr).



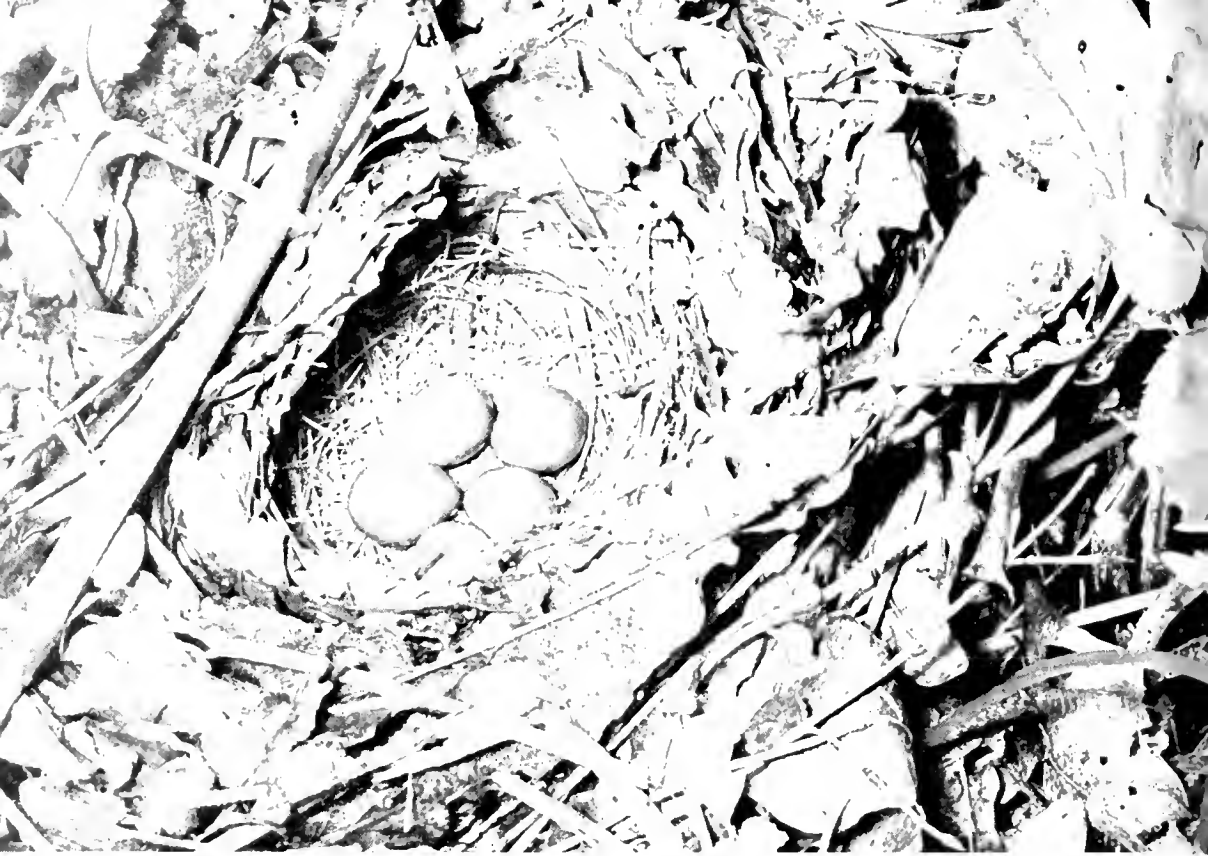


PLATE 32. Above, nest of Thrush Nightingale *Luscinia luscinia* with the normal clutch of five eggs, Denmark, June 1966 (photo: Ib Trap-Lind). Below, perched on a branch, this Thrush Nightingale *Luscinia luscinia* shows the breast markings which help distinguish it from the Nightingale *L. megarhynchos* (photo: N. W. Orr)



Taverner, R. S. Thomas, R. Tulloch, University of East Anglia Exploration Group (UEA), S. Wanless, P. S. Watson, S. Wolsey, G. Wood.

Many counts are from the Scottish Bird Reports (SBR) published annually in *Scottish Birds*, and publications of Aberdeen University Canna Expeditions (AU), Bardsey Bird Observatory (BBO), Calf of Man Bird Observatory (CMO), Cornwall Bird Watching Society Report (CBWS), Edinburgh Ringing Group (ERG), Hampshire Bird Report (HBR), Lundy Bird Observatory (LBO), Northumberland, Durham and Newcastle Natural History Society (NNHS), Portland Bird Observatory (PBO).

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SUMMARY

The recent overall decline in the British population of Puffins *Fratercula arctica* appears to have stopped, at least temporarily. This conclusion is based on detailed burrow counts at seven Scottish colonies and a survey of published and unpublished data for other British colonies. The few recent apparent declines have been mostly in the small colonies at the southern edge of the range, such as the Channel Islands, Brittany, southern England. It is tentatively suggested that it is not a coincidence that the numbers have stopped declining just when the temperatures of the seas around Britain have started to fall. Information is also presented on the numbers of Puffins occurring in other parts of the North Atlantic. Iceland has more than all other areas combined, while the high-arctic small-billed race *naumanni* is a rare bird with a population of 15,000 birds. The Puffin is probably the commonest seabird in the North Atlantic.

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Appendix. Counts of pairs of or individual (*in italics*) Puffins *Fratricula arctica* at colonies not documented in the text. Sources can be identified, by initials, in acknowledgements. All 1969-70 counts are from 'Operation Seafarer'

	YEAR								
SHETLAND	67	68	69	70	71	72	73	74	75
<i>Mainland</i>									
The Nab			0		<i>c.20</i>	<i>c.20</i>	19	27	<i>c.50</i>
Corbie Geo			order 2		18			4500—	PKK LJ, MPH, PKK
Sumburgh	1750		250					5500	MC, MPH
Valley of Kame			<i>c.200</i>					110	} MPH
Red Noup			200					247	
Landvillas			300					1500	
Grey Noup			order 2					<i>c.100</i>	
Giltarump			1					300	
Ronas Voe			50						40-50 PKK
Vaila				17				6	PKK, MPH
Lyra Skerry				order 2				9	PKK, MPH
<i>Yell</i>									200+
Red Geo			320						PKK
<i>Fetlar</i>									
a)			400			125		61	} RSPB
b)			150			200		95	
c)			40			80		406	
d)			500			975			
<i>Out Skerries</i>									
Housay								42	ISR
Bound				250				150	ISR
Bruray				40				25	ISR
ORKNEY									
Papa Westray			4				30+		DL
Copinsay			50						MB
Switha			235					196	DL
HIGHLANDS									
Stroma				100				439	RSPB
Canna			620	570	1350		765	1800	AU

		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71																													

	YEAR									
	67	68	69	70	71	72	73	74	75	
ISLE OF MAN										
Calf of Man	14	20	25	30	30	30	30	30	100	MW, RH, CMO
GWYNEDD										
Skerries			5				114			RWA, GW
South Stack			4			82	26	64	60	RWA
DYFED										
North Bishop		25	40						15	RSPB
St Margaret's Isle			4	1	2	1	2	1	3	SJS
CHANNEL IS.										
Jersey			10					14+40	4	RB
Jethou			17			20	11			MH
Godin			50	15	52	22	16	10		AJB
Galeu			0		1		0	0		MH
Longue Pierre			14	9	20	15-20	24	12		MH
Burhou			1028	500	1000	1000	1080	1000		MH
Sark			25		16		20-25			FRGR
CO. WEXFORD										
Great Saltee		875	750	750	1050	776	400	553	750	Cabot (1976)

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Studies of less familiar birds

180 Thrush Nightingale

Norman Orr

Photographs by Norman Orr and Ib Trap-Lind

Plates 29-32

The Thrush Nightingale *Luscinia luscinia* and the Nightingale *L. megarhynchos* together form a West Palearctic species group which provides one example of so-called 'sibling' species partnership (i.e. two species, each perfectly distinct in the biological sense and never hybridising*, but very difficult to separate in the field). It is believed that the distinction between the two was caused by geographical isolation during the last glacial period.

The Thrush Nightingale breeds in boreal, temperate and steppe climatic zones of east Europe and west Asia, within limits bounded approximately by the July isotherms of 16°C in the north and 25°C in the south. The most north-westerly breeding sites are in Finland, southern Sweden, Denmark and Baltic Germany, from where the westerly boundary runs south-east through Poland, east Czechoslovakia, Hungary, north-east Yugoslavia and Romania. The eastern distribution extends from this boundary to about the 90°E meridian in the central USSR (Voous 1960). The species is a summer visitor to these regions, wintering in tropical east Africa, mainly south of the equator, as far as the Transvaal and Natal. It is a rare vagrant to Britain where, up to the end of 1975, there have been 28 records (24 in spring, four in autumn). It is remarkable that before 1965 there were only three accepted reports of the species (15th May 1911, 10th May 1957 and 15th to 17th May 1958—all on Fair Isle). Since 1965, however, records have increased dramatically and during 1970 alone seven birds were identified. Most occurrences have been on Fair Isle, but individuals have also appeared in two parts of Shetland (three), in the Western Isles, in Fife (three), Northumberland (three), Yorkshire (two) and Kent. The spring records range from 8th May to 5th June, and there is one interesting one of an immature trapped on Fair Isle on 15th June; the earliest autumn record is on 31st July, and the latest on 2nd October. Since almost all the British records have occurred in the last ten years, one wonders whether the increase is real or whether it merely reflects the greater numbers of observers and the improved efficiency of recording techniques—particularly by trapping. The western

*Although there is no record of hybridisation in the wild, there is one of a fertile cross in captivity which produced five young (*Orn. Mber.*, 51: 1-4).

extension of the Thrush Nightingale's range in recent times (see page 269) may account to some extent for the increase in reports, but perhaps the second factor is also significant. The Rarities Committee regard the spring occurrences as 'evidence of the overshooting of Scandinavian adults in late May' (Smith *et al.* 1975).

In appearance the Thrush Nightingale is very like the Nightingale; it has the same shape, is the same size of $16\frac{1}{2}$ cm ($6\frac{1}{2}$ in.), its plumage is superficially the same and its behaviour very similar. However, given a clear view and good light, the spotted breast—particularly the sides—provides the best identification feature (plate 32b). In my experience, this spotting is always present to some degree, although in some individuals the breast might be better described as mottled, scaly or barred rather than spotted. Because it is often difficult to obtain more than a succession of fleeting glimpses of this bird, it might require quite a long period of watching to establish the identity, beyond doubt, by breast markings alone. There are other identification features, however. The upperparts (except uppertail coverts) lack the rufous tinge of the Nightingale's plumage, and have been variously described in the literature as earth-brown, olive-brown or grey-brown. Of the illustrations in the standard works, that in *The Hamlyn Guide* is, in my opinion, the most helpful in terms of colour. Usually the upperparts look darker than the Nightingale's, but this is not reliable because degrees of shade are so dependent upon ambient light conditions. However, the breast and belly (but not the throat) of the Thrush Nightingale invariably look darker than the corresponding underparts of the Nightingale, and most individuals have whitish flecks on the crown, nape and mantle. Some authorities maintain that the tail of the Thrush Nightingale is significantly less chestnut in colour than that of its sibling partner, but I would never regard this as a usable field identification feature. I have more than once been able to observe both birds within my field of view at one and the same time and have always found it impossible to detect any real difference in tail coloration. However, the greyer, non-rufous back and wings of the Thrush Nightingale have usually been quite obvious, as has also (an important point) the contrast in colour between the back/wings and the tail. It must be emphasised, though, that field identification by appearance alone can be very difficult.

When examined in the hand an infallible identification feature is the difference in wing-formula from that of the Nightingale (well illustrated in *The Handbook* but *The Hamlyn Guide* is in error). The Thrush Nightingale has a short first primary (the Nightingale's first primary is longer than the wing coverts); the second primary is longer than the fourth (it is shorter in the Nightingale); only the third primary is emarginated (the Nightingale's fourth is also

emarginated).

The nestlings and juveniles are virtually indistinguishable from those of the Nightingale (plate 29), although the greyer, less rufous upperparts of young Thrush Nightingales would probably become increasingly obvious with age. I have seen very little of the juveniles after their first moult, which occurs shortly after they leave the nest, at about 18 days old (Berger 1967). Adults moult just before departing on their migration in late August.

Although identification of the Thrush Nightingale by appearance is difficult, identification by voice is altogether a different matter. There is a strong similarity between the songs of the two species but the differences are quite distinct and can be quickly learned by any observer possessing even a relatively insensitive 'ear'. There has been at least one interesting attempt to record the song in musical notation (Stadler 1958, 1959), but it has been more usual for authors to give phonetic interpretations or prose descriptions, although a few of the latter in the standard works of reference are somewhat contradictory, for example: 'the song is altogether more solemn and *more beautiful* than the Nightingale's' (*The Handbook*); 'the song[s are] *equally musical*' (the *Field Guide*); 'song resembles that of the Nightingale . . . but [is] *less musical*' (*The Hamlyn Guide*) (my italics). Some rather more objective and helpful characteristics of the song are that the Thrush Nightingale's utterances are even louder and more powerful than the Nightingale's, which is often enough to differentiate between them. It has considerable carrying power and when the bird sings its whole frame vibrates with energy and the chestnut tail shivers (the Nightingale, of course, performs in like manner). Secondly, the Nightingale's familiar, flute-like 'pew-pew-pew' crescendo is never part of the Thrush Nightingale's song; the latter species can be immediately ruled out on hearing this phrase. Thirdly, the powerful 'jug-jug-jug' occurs regularly in both songs, but the Thrush Nightingale's version is invariably much stronger and has a character of its own; again, it can be diagnostic. The most important characteristic of all, but one which, as far as I know, has never been described (surprisingly, as it is a completely diagnostic feature of the Thrush Nightingale's song), is a distinctive, frequently recurring, trisyllabic phrase, which may be written phonetically as 'chiddy-ock' and is usually repeated two or three times in succession. I first identified this phrase some 19 years ago and have since pointed it out to several ornithologists who knew the Thrush Nightingale well. All of them later confirmed how valuable it had proved because it is never included in the Nightingale's repertoire. I strongly recommend, therefore, that anyone wishing to learn the voice of the Thrush Nightingale listens to a recording of the song and familiarises himself with this phrase. I have made many

magnetic tape recordings of the song and have listed one in the references (Orr 1969).

I have studied the Thrush Nightingale in regions of West Germany where both siblings occur together, and frequently been able to listen to the two songs simultaneously and make comparisons. The Thrush Nightingale, like the Nightingale, sings during the night as well as by day and often gives its best performances between 2.0 and 4.0 a.m. It seems less susceptible to inclement weather than its counterpart and will sometimes continue to sing after a drop in temperature has caused the Nightingale to give up. The song period is short, commencing (in north-west Germany) during the second week of May, and finishing before the end of June, but song has also been heard in the winter quarters and there are several accounts of this in the literature. Call notes include an alarm croak, uttered when disturbed at the nest with young (rarely with eggs); a rather high pitched 'wheet' or 'seep', somewhat reminiscent of the call of the Chaffinch *Fringilla coelebs*; and a loud 'tak'. All are very like the corresponding notes of the Nightingale.

Thrush Nightingales arrive at their northern breeding stations at the end of April or beginning of May—in Sweden the majority turn up between 6th and 15th of the latter month (Rendahl 1961)—and they leave again for Africa in August or September. They are single-brooded. Nesting commences shortly after the birds settle in their breeding territories and most have begun laying before the end of May. Incubation usually starts during the first few days of June in north-west Germany and is for a period of 13 days, most eggs hatching during the second half of that month. The young leave the nest eleven days later, although they are not fully fledged until about three weeks after hatching (Weber 1955). The hen seems to do all the incubating and she sits very tightly. When she does leave, she usually slips off quietly and runs from the nest, before flying low. Both parents take part in feeding the young and at the later stages of fledging they often become very bold indeed. The commonest clutch is five eggs, which for all practical purposes are identical in colour, shape and size with the Nightingale's, olive-green or olive-brown all over (plate 32a).

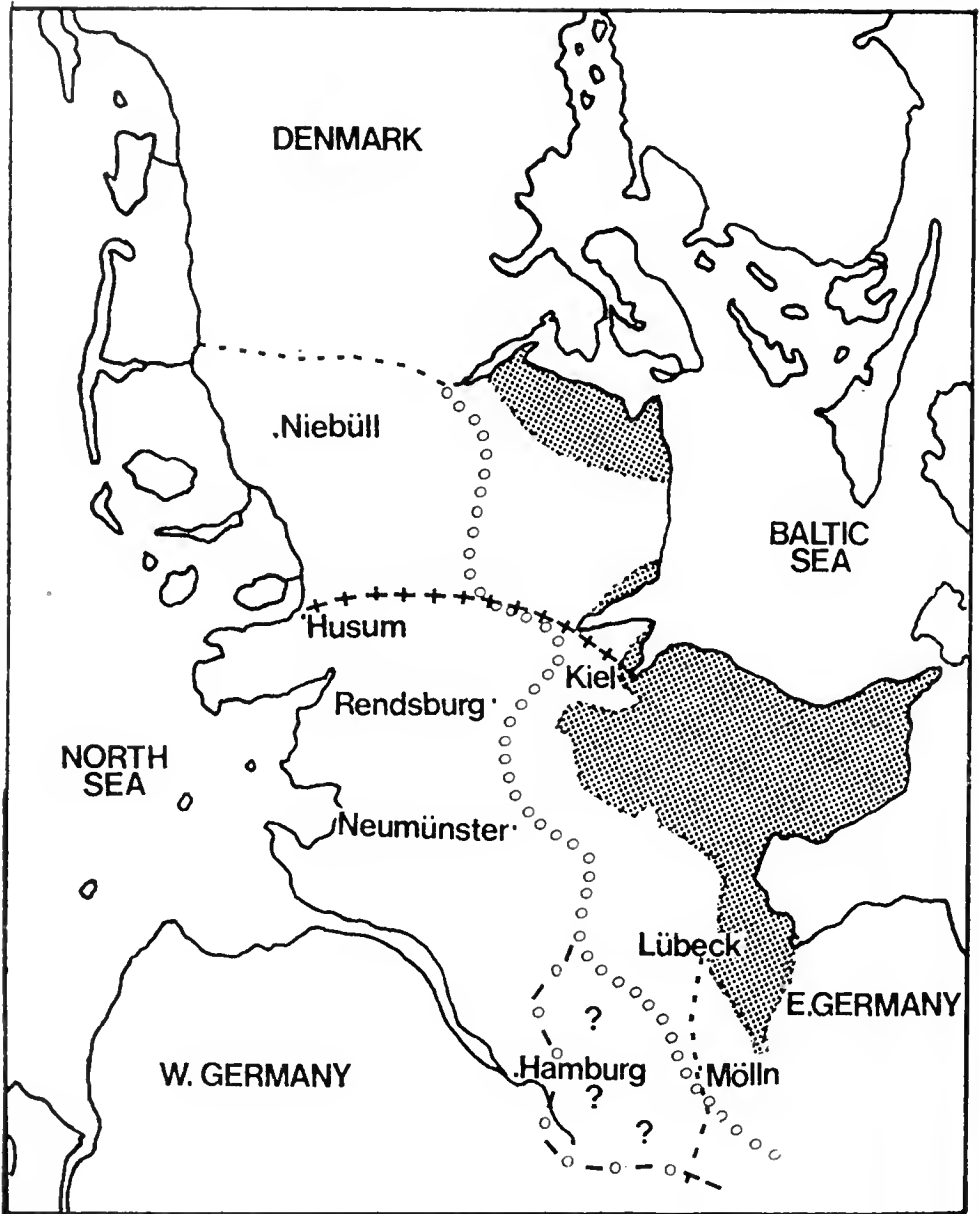
The typical nesting habitat of the Thrush Nightingale is a damp, deciduous copse of alder *Alnus glutinosa* or birch *Betula*, including gardens if they provide this type of cover. It is frequently believed that there is a clear-cut distinction in habitat preference between the Nightingale and Thrush Nightingale in regions where they occur together, the former supposedly choosing dry situations and the latter preferring moist sites. This concept may be generally correct over the entire breeding range but it certainly cannot be regarded as an infallible guide to nesting sites in north-west Ger-

many, where the two species often breed in almost identical situations. The Thrush Nightingale's nest, however, is almost always within about 20 metres of water and, indeed, is sometimes as close as 5 metres or so to a lake edge. On the other hand, I knew a regular site which was about 300 metres from the nearest water, in a perfectly dry situation.

The nest is bulky, like the Nightingale's, and is almost always on the ground. Normally it has a thick pad of leaves as a base, the cup being constructed of dead grass, leaves and bents which sometimes include aquatic vegetation such as *Phragmites* and *Iris pseudacorus*; this is lined with finer grasses. It is perhaps worthy of note that all the nests I have found have been enclosed between dead branches or largish sticks lying on the ground (plates 30, 31). Also, all but one of the sites were screened from the sky by an overhead canopy of foliage, whereas the Nightingale's nest is quite frequently placed in the open. The nest of the Thrush Nightingale is sometimes fairly difficult to find, at least during the eggs stage, although not all are well concealed and, if anything, it is easier to locate than the Nightingale's and certainly not in the same category of difficulty as that of the closely related White-spotted Bluethroat *L. svecica cyanecula*, for example, which often nests in ostensibly the same type of situations.

During this century, and particularly since about 1940, the Thrush Nightingale has extended its breeding range north and west. Until the 18th century it had been found in the neighbourhood of Stockholm, but by the middle of the 19th had disappeared from that region and did not return until about 70 years later. Since then there has been a continued expansion of its range north and west, and its numbers appear to have increased steadily (Karvic 1952, Bjärvall 1965, Elofson 1968). It has been reported singing in Norway during the present decade (Mork 1968).

The accompanying map (fig. 1) shows the distribution of the Thrush Nightingale and Nightingale in the West German province of Schleswig-Holstein, the region in which I have studied the species. This is a particularly interesting area for such a study as it is the only part of western Europe where the ranges of the two overlap. The map also shows the western advance in breeding range of the Thrush Nightingale during 1964-74, and I am very grateful to Dr G. A. J. Schmidt, of Kiel, for providing the information on distribution for the last of these years, although he emphasises that the limit shown is only an approximate one (at my suggestion he kindly initiated a survey of singing males during the 1974 breeding season and collated the resulting observations). The map information for 1964 is after Beckmann (1964). In the vicinity of Hamburg the western advance appears to have been



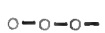
Breeding range of Thrush Nightingale in 1964



Northern limit of range of Nightingale in 1964



Estimated western limit of Thrush Nightingale in 1974



Approximate further extension of Thrush Nightingale in south in 1974

Fig. 1. Breeding distribution of Thrush Nightingale *Luscinia luscinia* and Nightingale *L. megarhynchos* in Schleswig-Holstein

particularly marked (Leuschner 1974).

One study area of mine is a compact zone of approximately 11 ha, where there have been twelve regular breeding sites of the Thrush Nightingale and/or the Nightingale since before the mid 1950's. Although not all sites are occupied every year, at least ten usually are. When I first came to know the area, in 1957, there were rather fewer Thrush Nightingales than Nightingales breeding there, but, by the late 1960's, the Thrush Nightingale outnumbered the Nightingale by approximately three to one. In very recent years, however, there has been a reversal in this trend: in 1973 the numbers breeding were seven Thrush Nightingales and four Nightingales; and, in 1975, four Thrush Nightingales and six Nightingales. The significance of this change is difficult to appraise at present, but it may represent only a cyclic fluctuation.

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Notes

Behaviour of injured Common Tern At Vatster, Yell, Shetland, on 21st July 1973, a day of strong northerly winds, I saw a Common Tern *Sterna hirundo* sitting in a field of cut hay below an electricity cable which the tern had presumably hit. The bird was unable to fly. When other terns passed overhead it called loudly and occasionally a tern carrying food would alight; this could have been the same bird each time or different birds. For about ten minutes the newcomer stood near the injured bird, which called plaintively and made soliciting gestures. Eventually the injured tern managed to struggle near enough to the other to snatch the fish. Having swallowed the fish the tern displayed further soliciting movements which induced the visitor to mount and attempt coition before flying away.

The routine was observed three or four times. On the last occasion, in the evening of 22nd July, the injured bird was obviously very weak and, after obtaining food, following a long wait, it allowed the visitor to mount. After about two minutes of treading, the visitor flew off and did not return. Early the next day, which was fine and warm, the injured tern was still in the field but it disappeared later and was not seen again.

DAVID MERRIE

West Faerwood, Dollar, Clackmannanshire

Little Owl flying at Dunlin On 7th January 1975, at Walney Island, Cumbria, I was watching a group of feeding Dunlins *Calidris alpina* when suddenly a Little Owl *Athene noctua* emerged from behind a large tide-stranded tree trunk. The owl flew low at the Dunlins and seemed to strike at them with its talons, but caught nothing. I saw what I took to be the same bird repeat the process on 9th January, again without success. On the morning of 11th January, however, I found the decapitated body of a Turnstone *Arenaria interpres* beneath the tree trunk. On this evidence I surmise that the Little Owl was including small waders in its diet, although I failed to locate any pellets.

RON FREETHY

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Piratical Short-eared Owl On 17th November 1974, at Needs Oar, Hampshire, on an area of rough grassland, I was watching a Stoat *Mustela erminea* which was carrying a small mammal. Suddenly a Short-eared Owl *Asio flammeus* appeared and dived at the Stoat, which dropped its prey. The Stoat stood on its hind feet and retaliated but the owl snatched up the prey in its talons and flew off.

C. R. WOOD

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Swallows and House Martins singing from the ground

With reference to R. W. Robson's note on Swallows *Hirundo rustica* singing from the ground (*Brit. Birds*, 68: 77), I have observed this myself on a nearby cricket pitch. During the summers of 1973 and 1974, in showery weather, I noticed both Swallows and House Martins *Delichon urbica* singing between showers on the pitch itself and on the short grass of the outfield.

J. P. DAWSON

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Carrion Crows submerging to catch fish

In early June 1973 I witnessed a pair of Carrion Crows *Corvus corone* plunging into the River Severn at Shrewsbury, Salop, to catch fish. One crow jumped feet first from a concrete ledge into the water and remained totally immersed for a few seconds before reappearing with a fish in its bill. The second crow received the captured fish and dashed it several times on the ledge. The dead fish was then taken to some young crows perched on the roof of a nearby building. The whole operation lasted about 20 minutes and was repeated several times, each time successfully. The crows took turns in the fishing and killing operations.

JOHN HUGHES

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There are many instances of Carrion Crows taking fish and other food from water, for example *Brit. Birds*, 40: 158, 245; 41: 278; 44: 323; 49: 91, but this observation is exceptional. The success rate was high even for terns *Sterna* or kingfishers (Alcedinidae) while the fact that two crows should have learned to plunge right under water is very remarkable. EDS

Aggression between female Chaffinches

On 20th March 1973, while walking along a canal bank near Brecon, Powys, my attention was drawn to a squabble between two birds in a tree. The birds fell to the ground, where they continued to hold and peek each other. They proved to be female Chaffinches *Fringilla coelebs* and they were watched and followed by a passive male which stood within one metre of them with upright stance and erected crest. One female eventually extricated herself and was chased out of view. I am unable to find any reference to aggression between female passerines of the same species in the literature which is available to me.

DUNCAN BROWN

Gilwen, Dorlangoch, Brecon, Powys

The females of many passerines, for example Blackbirds *Turdus merula* and Canaries *Serinus canarius*, are known to fight in sexual and/or nest site contexts, although the literature does seem scarce on this behaviour. EDS

House Sparrows pursuing other species Almost a century ago, Richard Jeffries (1885, *The Open Air*) referred to Rooks *Corvus frugilegus* being pursued by House Sparrows *Passer domesticus*. Additional observations involving other passerines were contributed by F. Finn (1911, *Talks about Birds*), D. Goodwin (*Brit. Birds*, 42: 64) and Dr K. E. L. Simmons (*Brit. Birds*, 44: 369-372), but all these left a number of questions unanswered and I felt that the subject deserved further study. Therefore, from 1st November 1967 to 31st October 1974 I kept a record of all pursuit incidents witnessed at Burnley, Lancashire, and present the following results:

1. The behaviour follows a seasonal pattern, the number of observed incidents per month being:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
14	32	30	20	12	8	11	1	2	17	14	12

This pattern closely resembles that for House Sparrow communal displays (*cf* graph in D. Summers-Smith, 1963, *The House Sparrow*: 63).

2. Females seldom participate: I recorded males 40 times but a female only once (29th February 1972).

3. The typical chase starts suddenly, when the victim takes off from a point close to where the sparrow is perched; it may be sustained for some distance, and the pursued bird is genuinely alarmed, although the sparrow's hostile behaviour stops when the victim alights. There is definitely no attempt to dislodge feathers for nest material.

4. The victimised species are those which live near the sparrows, and the breakdown of pursuits per species is as follows: Feral Pigeon *Columba livia* 81; Starling *Sturnus vulgaris* 80; Mistle Thrush *Turdus viscivorus* 4; Blackbird *T. merula* 3; Jackdaw *Corvus monedula* 2; Song Thrush *T. philomelos* 1; Chaffinch *Fringilla coelebs* 1; Rook 1.

5. Chases may occur at any time of day, but possibly more often in the morning and during mild weather.

The behaviour seems purposeless, but perhaps stems from aggressive nervousness at those times when the males' sexual/territorial instincts are at their most intense. K. G. SPENCER

3 Landseer Close, off Carr Road, Burnley, Lancashire

Reviews

The Book of Birds: Five Centuries of Bird Illustration. By A. M. Lysaght. Phaidon Press, London, 1975. 208 pages; 40 illustrations in colour; 102 in monochrome. £20 (in slip case).

The bird illustrations here presented are largely antiquarian in character. Introducing her subject the author discusses birdlore, anciently evolved, with its omens, symbols, myths and magic extending into historical times. True and fabulous species are marshalled in roles that range from the sinister to the ecstatic. The introduction concludes with a brief account of the men who advanced the study of birds in the centuries between the classification of Aristotle and the sunburst of 19th-century ornithological splendour.

One pleasure of this book lies in its size and format. The plates, on white art paper, face notes printed on pale grey cartridge, the interleaving providing a pleasant contrast to hand and eye. The typography throughout is faultless. Choice of illustrations from so vast a field was reduced to selecting only from sources available in Britain. The plates are splendidly printed though half-tone, used throughout, does not always deal fairly with originals in line; woodcuts in reduction, for example, lose something of their 'edge'. The illustrations begin with manuscript drawings and lead on to the first crude woodblocks where myth and fable are contrasted with the abler ornithology of Gesner and his contemporaries. As printing improved, more fluent and detailed techniques coupled with the growth of scientific enquiry led to pictures in greater variety of styles, content and knowledge. Since even these illustrations were made from ill-prepared skins, however, there is often a macabre 'jizz' to the birds, though much pictorial charm. This section concludes with a few stylish examples from the 19th century.

The colour plates cover broadly the 150 years before 1900. Among the most splendid are works by Wolf, Gould and Audubon; many less famous are deservedly represented, though some with more than one work at no gain aesthetically. With colour printing of this quality it is regrettable that in five plates some portion of the bird—tail, wingtip, even crown—is cut off, unnecessarily so when evidence within the painting is studied. Notes to each plate give source and something of the history of the work; for some exotic species even a little basic ornithology is included. There is a bibliography of close on 140 entries and an index.

For the ornithologist this book contains many delights, portraying the historical search for truth in nature with considerable scholarship. The curiosities, felicities and aesthetic pleasures in the collection cannot be comprehensive: some artists are omitted or poorly

treated, others treated too well. While it is more than a book for the coffee table its price must put it among the luxuries on the library shelf.

LESLIE BAKER

A Guide to the Birds of Malta. By J. Sultana, C. Gauci and M. Beaman. Malta Ornithological Society, PO Box 498, Valletta, Malta, 1976. 191 pages; 4 pages of black-and-white photographs; numerous line-drawings. £3.00 (paperback £1.90).

This guide is particularly welcome because it is written and published by the Malta Ornithological Society and is based on their own collected records. It is time that the efforts of the MOS to combat what Dr W. R. P. Bourne in his foreword calls 'one of the worst scandals in Europe' should receive some acknowledgement. Malta, like Italy in a way, has been a blot, not only because the only preoccupation of so many of Malta's citizens has been the taking, killing and stuffing of vast numbers of wild birds that visit or are resident on the island, but because comparatively little help has been given to it by better developed countries. The authors have generously acknowledged the help of some, but we have not done enough yet.

The book describes concisely the climate, geology and geography of this small archipelago with a limestone dominated landscape. The main vegetation types are forest, chiefly Aleppo pines; maquis; garigue; valley bottoms which in winter and spring are very fertile and offer birds shelter; marshes; agricultural areas with walls; and the sea cliffs, some of which rise to 46 metres (150 ft).

Of the 346 species recorded on Malta only 18 breed, and of these only 13 are resident. The authors comment that small isolated islands tend to have impoverished resident avifaunas, but here the paucity of species is decreased further because of the scarcity of water and of suitable habitats and by relentless persecution. Malta has only three breeding seabirds, all Procellariiformes, which, of course, reflects the low numbers of seabirds in the Mediterranean. There have been some changes in status; almost all the larger breeding species have declined since the 19th century and the Stone Curlew and Jackdaw have recently become extinct as a result of human persecution. On the other hand, some warblers have established themselves—Sardinian, Cetti's and Fan-tailed.

Migration dominates the ornithological year and the islands receive a representative sample of broad-front migration across the Mediterranean. The main systematic list summarises the status of each species for which data have been available over the years and discusses the validity of some of the records, and as a result a number of species which have been included in previous lists have been

excluded. This book is essential to a visitor interested in the birds of Malta, and to anyone interested in the avifauna of the Mediterranean region and migration in this area. The MOS is to be congratulated on the production of this book, which must be the authoritative list for some time to come.

PETER CONDER

Letter

Proof of breeding In his summary of 1973 records of the Black Redstart *Phoenicurus ochruros* (*Brit. Birds*, 69: 9-15), R. S. R. Fitter wrote (p. 12): 'Breeding was proved in 15 counties . . . and Orkney (Copinsay), for the first time ever in Scotland.' But on page 15 under Scotland we read: 'A female sat on a nest containing infertile eggs on Copinsay . . . No male was ever seen. This constitutes the first nesting, if not the first breeding record, for Scotland.' It also seems to call for some definition of 'breeding' in respect of egg-laying animals. The several meanings given in the *Concise Oxford Dictionary* and the *Penguin English Dictionary* all to me imply the existence of an embryo, if not its successful rearing, though only *COD* actually gives 'cherish in womb or egg'.

I then looked up two references to another famous record of this kind, the laying of a clutch of eggs by a Bluethroat *Luscinia svecica* in Strathspey in 1968. In *The Status of Birds in Britain and Ireland* (1971, BOU) I read (p. 209): 'One record: a pair bred unsuccessfully in Scotland in June 1968; only the female was seen'. This suggests another interpretation; and how was the existence of a male even inferred? The eggs were eaten by a predator and I do not think that their fertility was ever established. The legend to the map on page 255 of J. L. F. Parslow's *Breeding Birds of Britain and Ireland* (1973) reads: 'First and only breeding record, Inverness 1968', which seems to take us back to square one. A ruling needs to be given, because in the *Atlas* the presence of an egg also constituted 'proof of breeding'.

BRUCE CAMPBELL

West End Barn, Wootton, Woodstock, Oxford OX7 1DL

News and comment *Peter Conder*

The Swale National Nature Reserve, Kent The Nature Conservancy Council has purchased about 113 ha (278 acres) consisting mainly of coastal grazing marsh and saltings together with various fleets, dykes and sea walls. The reserve lies on the north side of the Swale estuary just over one km from the eastern tip of the Isle

of Sheppey. It forms part of the large complex known as the North Kent Marshes which is recognised as a wetland of international importance. These habitats are notable for their marshland birds. Breeding species include Mallard, Shoveler, Pochard, Shelduck, Redshank, Lapwing, Meadow Pipit and Yellow Wagtail. During winter many wildfowl and waders feed and roost on the reserve, especially Teal, Wigeon, Redshank, Curlew and Dunlin, and occasionally Brent Geese and White-fronted Geese. Short-eared Owls, Hen Harriers and Rough-legged Buzzards are also usual winter visitors. Many of the marshes in north Kent are now being subjected to improved drainage, but retention of grazing marsh and of high water levels is very important for the marshland birds. To maintain ideal and varied habitats the NCC will also continue to graze the reserve with cattle and sheep. Public access is restricted to the public footpath which crosses the reserve along the sea wall. A permit is necessary to visit other parts of the reserve. There is a full-time warden but all enquiries should be sent to: The Regional Officer (South-East), Nature Conservancy Council, Zeal, Church Street, Wye, Ashford, Kent TN25 5BW.

Young birdwatchers buy seabird reserve Thanks entirely to the efforts of young birdwatchers, the Royal Society for the Protection of Birds has acquired a new reserve—a seabird cliff in Scotland.

The reserve, at Fowlsheugh, south of Stonehaven in Kincardine, has cost £5,300 and the money has been raised by members of the Young Ornithologists' Club (YOC) as part of their contribution to the Society's 'Save a Place for Birds' appeal to raise money to buy bird reserves. Covering $2\frac{1}{2}$ km of sheer 60-metre cliff, the reserve is one of mainland Britain's most impressive seabird colonies. From April to July the cliff teems with thousands of Guillemots, Kittiwakes, Razorbills, Fulmars and Puffins. All this birdlife lies within a few minutes' walk from a busy main road.

Nine kilometres of danger Great Crested Grebe, Gadwall, Moorhen, Herring Gull, Tawny Owl, Mistle Thrush, Blackbird, Stonechat, Robin and Reed Bunting—all were found dead, killed by fishing line. Also, two Moorhens, two Black-headed Gulls, several Mute Swans and a Gannet were found severely injured by discarded fishing line or fishing hooks. These are just some of the horrifying facts that came to light after YOC's project, reported in *Bird Life*, to find and destroy all discarded fishing line during the last coarse fishing season. The total length destroyed was 9.1 kilometres (5.6 miles). This information is being sent to the editors of angling papers in the hope that they can make fishermen aware of this great threat to birdlife.

The fact that nylon fishing line ensnares birds along river banks has been known for some time, but I think that this YOC study gives the first quantitative information that I have seen on the size of the problem. Fishing club officials have warned their members about it and the RSPCA have produced a poster urging fishermen to take their unwanted line home with them. It is probably the unclubable fisherman who is causing the problem, and it is likely that the only answer lies in an approach to the individuals actually seen discarding line.

A similar problem of which we know too little is the hazard to Gannets caused by discarded polypropylene, of which modern fishing nets are made. This synthetic material, thrown into the sea by trawlers and drifters when nets are damaged, is picked up and brought as nesting material to the nest by Gannets. Many young Gannets have been caught up in it and have died on their nests.

12th Bulletin of the ICBP This bulletin records the activities of the International Council for Bird Preservation between 1970 and 1974, and includes reports on the European Continental Section ICBP in Mamaia, Romania, 1972; the XVI

World Conference ICBP held in Canberra, Australia; and also a report on the symposium on the international trade in live birds, which was also held in Canberra at the time of the World Congress. Furthermore there are a wide range of reports and papers on problems of bird protection, whether involving endangered species or special problems such as pesticides, birds and the environment, oil pollution at sea and so on. All in all it is a very comprehensive survey of what the ICBP has been doing in various fields. Like all good reports it throws up the problems which need to be tackled. It is interesting in this respect to see what progress has been made in dealing with the problems revealed by the resolutions. At times I wonder whether, the resolution having been passed and submitted to the appropriate authority, there is any follow-up. For instance, is the ICBP still active in trying to prevent the catching of birds for trade at Cap Bon, Tunisia, which was the subject of a resolution in 1972, and where large numbers of many species of birds are still taken annually?

This bulletin, which contains many useful papers or summaries of papers and reports presented to conferences, can be obtained from the ICBP, c/o British Museum (Natural History), Cromwell Road, London SW7 (price £4.50 or \$10).

Birding in Mallorca Mallorca (or Majorca as the package tour operators will have it) attracts many birdwatchers. In spite of the horrible tourist development in some areas, large expanses of the island still attract birds and many birdwatchers have found the average package deal a most convenient way to get to the island. Eddie Watkinson, the RSPB's local rep in Mallorca, who is continually besieged for information about local birds and where to see them, has now produced a booklet entitled *A Guide to Bird Watching in Mallorca* which seems to answer most of the questions a visiting birdwatcher wishes to ask about local conditions. It is very fully illustrated with maps and will be most useful for anyone visiting Mallorca. It will probably take a bit of pressure off Eddie Watkinson, although he does not seem to complain. The guide can be obtained in this country from T. Tidy, 9 Freewaters Close, Ickleford, Hitchin, Hertfordshire (price £1.90, including post and packing).

Birds of Guernsey *A List of the Birds of Guernsey* is the fourth list of the birds of different channel islands to be published in recent years; Alderney, Jersey and Sark have all produced lists since 1972. Now A. J. Bisson has updated Guernsey's list, rejecting a number of records that had previously been regarded as acceptable. This little publication begins with a short note on the geography, topography and climate of the island, and discusses the history of the ornithological records, paying tribute to Roderick Dobson whose work *A list of Birds of the Channel Islands* brought together what was known about the island birds and stimulated local birdwatchers to further activity. This list of Guernsey's birds, which is one of the fruits of this activity, gives all the acceptable records and a two- or three-line note of the status of each species. It is available from A. J. Bisson, Le Petit Ruisseau, La Mare Estate, Vazon, Guernsey, C. I. (price 70p, post free).

Field Studies Council courses I have just been reading the titles of the courses run in the nine centres of the Field Studies Council. Whilst the bird courses may be rather elementary for the expert readers of this journal, I was struck by the wide range of subjects on which courses are given, which should give even the most expert ornithologist a look from a different angle at the environment in which he and his birds live. Most centres, in Pembrokeshire, Snowdonia and East Anglia for instance, run courses for the general naturalist in their areas. Birdwatchers should surely want to know something more about life in the estuaries or on the seashore where waders are feeding, or about the geology which produces seabird cliffs or feeding niches for Rock Pipits. Other titles are Quantitative methods in field studies, Woodland ecology, and so on. Some courses are especially designed for

the family. The cost for a week is about £39. A leaflet giving the complete list of courses for the remainder of 1976 can be obtained from the Field Studies Council, 9 Devereux Court, Strand, London WC2R 3JR.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

March reports *D. A. Christie*

These are largely unchecked reports, not authenticated records

March was a month of generally windy weather, anticyclonic and with south-westerlies, many summer migrants arriving towards the end of the month during westerly winds. These will be dealt with in the spring summary. For the rarer species, however, March was by no means outstanding.

On 26th a **White-billed Diver** *Gavia adamsii* was found dead at Friskney (Lincolnshire), the first reported to us in 1976. A **Green-winged Teal** *Anas crecca carolinensis* was at Upper Tamar Reservoir (Devon) on 14th, when a female **Surf Scoter** *Melanitta perspicillata* was discovered at Mumbles (West Glamorgan). A further **King Eider** *Somateria spectabilis* was found at Loch Ryan (Dumfries & Galloway) on 22nd. A **Ross's Gull** *Rhodostethia rosea* was observed at Scarborough (Humberside) from 27th until April, and a second-year **Ring-billed Gull** *Larus delawarensis* was at Blackpill (West Glamorgan) from 27th to 30th. A **Killdeer** *Charadrius vociferus* which appeared near East Boldon (Tyne & Wear) on 31st remained until 9th April.

There were two very early reports of **Manx Shearwaters** *Puffinus puffinus*, a single bird grounded at the light at Lundy (Devon) on 5th and three individuals off Sumburgh Head (Shetland) on 21st. **Great Skuas** *Stercorarius skua* passed south at Seaton Sluice (Northumberland) on 7th and 21st, and another was noted at Bluemull (Shetland) on 27th, while one or two were present all month off Sunderland (Tyne & Wear). A **Red Kite** *Milvus milvus* was identified at Frodsham marsh (Cheshire) on 28th.

An influx of **Hoopoes** *Upupa epops* was reported in Scilly at the end of the month, and in the same group of islands at the same time there were reports of a **Desert Wheatear** *Oenanthe deserti* and a **Black-headed Bunting** *Emberiza melanocephala*, though details of these have not yet been received.

More substantiated were the continued sightings of overwintering birds at several localities. The **Lesser Yellowlegs** *Tringa flavipes* was still on the Teign estuary (Devon) (see *Brit. Birds*, 69: 159), and both the **Long-billed Dowitcher** *Limnodromus scolopaceus* at Stithians Reservoir (Cornwall) and the **Temminck's Stint** *Calidris temminckii* at Thorney Island (West Sussex) remained from January (*Brit. Birds*, 69: 192); there was a report of a **Crested Lark** *Galerida cristata* at Dungeness (Kent) early in the month (cf *Brit. Birds*, 69: 73-74, 192); and the **Black-throated Thrush** *Turdus ruficollis* found at Coltishall (Norfolk) in February (*Brit. Birds*, 69: 231) was trapped and ringed there on 13th March.

Finally, in the woods at Sheringham (Norfolk) an **Arctic Redpoll** *Acanthis hornemanni* was identified on 20th and, although mere sight records of this species are not normally accepted, two individuals were trapped in the same wood on the following day.



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Photographs

Readers will have noticed that difficulties have been experienced in the reproduction of photographs in recent issues of *British Birds*. We are most anxious that the reputation for good photographs, which this journal has rightly earned over the years, should be maintained. We have decided, therefore, that those originally destined for this issue should be held over, while the reason for the fault and a remedy are found. These photographs will appear with a future issue, so that the complete volume will contain as many illustrations as usual.

British Birds

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Field identification of Long-eared and Short-eared Owls

A. H. Davis and Robin Prytherch

INTRODUCTION

The feeding ecology of Long-eared Owls *Asio otus* and Short-eared Owls *A. flammeus* has been studied considerably, but little is available in the literature to help with the problems of field identification, particularly in flight. Both species are very similar in character and confusion can, therefore, arise when attempting to identify birds in the field. Most quartering *Asio* owls are logged as Short-eared, and rarely, if ever, as Long-eared: we believe that this is largely because the latter are regarded as almost exclusively nocturnal. We feel that this factor may have been overemphasised to a degree that has caused some Long-eared to be missed, or even mistakenly identified as Short-eared.

When distinguishing Long-eared, the standard field guides (Bruun and Singer 1970, Heinzel, Fitter and Parslow 1972 and Peterson, Mountfort and Hollom 1974) and *The Handbook* (Witherby *et al.* 1938-41) tend to stress (a) its nocturnal habits as opposed to the diurnal habits of Short-eared, (b) long ear-tufts, (c) erect posture at rest, (d) more wooded habitat, (e) eye colour and (f) comparison with Tawny Owl *Strix aluco*. They also mention plumage colour, extent of streaking and barring, and the proportions of the wings. Flight characters are inadequately given, or absent,

whereas for Short-eared this aspect is usually covered reasonably well. Most drawings and paintings of these owls in flight are badly proportioned, with vastly overlong tails on both species. In essence, then, the naive observer is conditioned into thinking that any *Asio* owl seen in flight in Britain during the daytime will be a Short-eared.

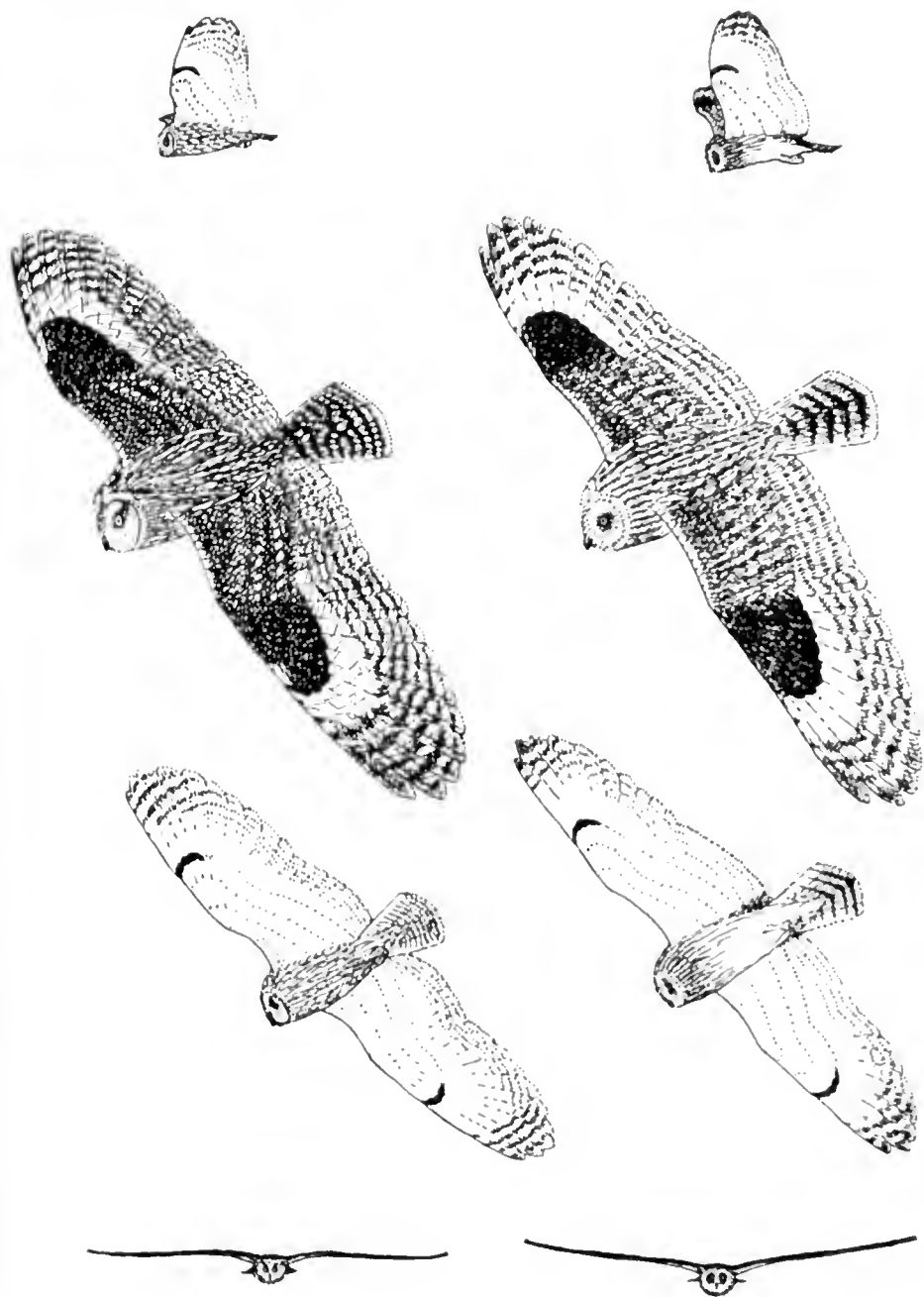
It is obvious, however, that northern breeding Long-eared are going to be forced into the daylight when darkness is so limited by the extremely short summer nights. Migrating owls could also arrive at coastal localities at any time of the day or night. Also, those flushed by chance can easily disappear from sight, and the brief flight views obtained give the only opportunity for identification. It is well known that the colour of the plumage of both species is variable and we suspect that the Short-eared has greater extremes than the Long-eared. It is the dark Short-eared that are most likely to cause confusion. We therefore suggest that any *Asio* owl seen during daylight hours be looked at closely for the characters outlined below, which, if seen, should confirm identification.

PLUMAGE, FLIGHT AND STRUCTURE

In the notes which follow, colours and tones are those which show when birds are seen in good lighting. It must be stressed that the intensity of colour varies between individuals and that even the most richly coloured will fade into insignificant shades of grey in poor light.

In flight the upperparts of Long-eared tend to be generally more uniform than those of Short-eared—darkish brown, streaked and mottled with rich buff and greyish. Long-eared also tend to have richer buff primary patches on the upperwing, verging on a rusty colour in very good light conditions, and these, together with the darker background colour of the upperparts, are good field characters when the initial sighting is made. The primary patches of the Short-eared are much paler, being sandy-buff to white; and the rest of the wing is also usually much paler, thus making the dark carpal patch conspicuous. The upperparts of the Short-eared are generally pale buff and brown, more blotched than streaked, giving a less uniform and distinctly mottled effect. The dark carpal patch on the upperwing of the Long-eared is less distinctive since there is less contrast with the rest of the wing, which is mostly darkish.

The appearance of the underwing is very similar in both species, being mainly very pale with darkish marks on the ends of the longest primaries and a small black patch on the underwing primary coverts (usually referred to as the carpal patch, although it is not actually on the carpal joint). The Long-eared can, however,



R/P

Fig. 1. Long-eared Owls *Asio otus* (left four birds) compared with Short-eared Owls *A. flammeus* (right four). The larger figures show upper and under surfaces and general proportions, with (at bottom) head-on views with wings held as in a typical hunting glide. The small profiles (top) show how squat Long-eared can look and how Short-eared's wings are held forward, an effect accentuated by the narrower outer wing. Note particularly the appearance of the underside of the body and also the amount of barring on, and shape of, the tail (drawing by Robin Prytherch)

show a tinge of rich buff colour, with some darker flecks, on the underwing coverts, giving this area an off-white appearance at a distance, but some individuals do not. The flight feathers are similarly pale, with variable faint barring extending from the darker marks on the longest primaries. The Short-eared has pale buff to white underwing coverts, giving a very pale appearance; the flight feathers have markings similar to those of the Long-eared, but the two innermost secondaries are much more boldly marked than the rest and can show up as a small dark patch. The Long-eared has breast and ventral regions streaked dark brown, but the buffish ground colour helps to produce a more uniform effect, particularly at a distance; the undertail coverts are well marked. The Short-eared has heavy streaking on the upper breast and around the neck extending faintly on to the flanks and belly, but the ground colour is a much paler buff over the remaining underparts, so that they are well demarcated from the breast. Even in dark individuals, on which flank streaks may be bolder on a richer buff ground, the breast and neck 'ring' still show up darker. The undertail coverts are whitish with perhaps a few fine, dark streaks.

The hunting flight of the Long-eared Owl consists of long glides interspersed with brief bouts of deepish wing beats. During glides, often on a straight course, the wings are usually held level and straight in line, only occasionally with the wing tips above the level of the body (in a very shallow 'V'). The hunting flight of the Short-eared is similar but more wavering, accentuated by the more frequent and slightly shallower wing beats. During glides the wings are often held in a shallow 'V' with the outer parts forward, but it also glides on level wings. Both species have been seen to hover and, when flushed, often rise up high, to over ten metres, before settling again; the lackadaisical gliding flight adopted can be astonishingly similar for both owls. On these occasions the underbody usually shows well and should be looked at carefully.

If the two species are seen together in the field, structural differences are more easy to assess, but, with experience, single birds also can be identified on these characters alone. Long-eared are shorter and broader in the wing than Short-eared, with a shorter, squarer tail, producing wing proportions reminiscent of a Buzzard *Buteo buteo*. The uppertail is closely barred with dark brown on rich buff (six to eight bars), giving a dark, uniform effect at long range. The undertail is pale buff with up to nine, fine, blackish-brown bars, although in the central area some are covered by the undertail coverts. The wings of Short-eared are broad at the base but taper slightly to give a narrower, more pointed appearance to the outer part, and this effect is intensified since the wings are usually also held forward. The tail is somewhat longer with fewer, more

prominent bars (four to five), enhanced by the paler ground colour. It is also slightly wedge-shaped (although the central, longest feathers may become worn, producing a rounder shape), and the bars form a series of shallow arrows rather than smooth curves. The dark barring is heavier on the central feathers and less prominent on the outer feathers, making the tail look dark in the centre. The undertail is whitish with up to five, narrow, blackish-brown bars, although only three show well, the others being covered by the undertail coverts. These bars are also arrow-shaped (in fact, more obviously so than those on the uppertail) and are wider on the central feathers, narrowing to a thin line on the outer feathers. These features are demonstrated clearly in the photograph on page 1363 of Gooders (1969-71).

The Long-eared has been compared with the Tawny Owl, but confusion with this species should not arise. The Tawny is very bulky, with a relatively massive head and dark eyes (even in good light—see below), but more important is the fact that it shows five, well-fingered (or emarginated) primaries in flight. Both *Asio* owls show only a small amount of fingering on the first primary, and this is not usually noticeable in the field.

DIFFERENCES ON THE GROUND OR PERCHED

When a Long-eared is observed on the ground, or perched, identification should be easily clinched. It is more slightly built than the Short-eared, generally darker and more uniform in appearance. The face looks very cat-like, this effect being caused by the slightly elongated and more angular facial pattern. It has prominent black stripes on the ear tufts which continue down to below the eyes. These are flanked above by buffish-white feathers forming 'eye-brows' which converge above the bill and extend each side below it, standing out from the rich buff face and black tufts. This pale area could be described as a broad white line down the centre of the face. The ear tufts of the Long-eared are usually conspicuous but are sometimes held flat (almost always when in flight) and, of course, they are absent for a few weeks during the mid/late-summer moult. The eyes are deep orange and show up well at close range, but they can appear yellow at a distance in certain lights. Those of the Short-eared are pale yellowish and its face is much paler, being greyish-white, with distinctive circular dark areas around the eyes. As light lessens at dusk, the pupils slowly dilate until almost no iris colour shows, so this character is of value only in good light. The face of the Short-eared looks bulbous, unlike that of the Long-eared. The differences in the underparts given above are also visible on some perched birds.

When perched, Long-eared usually sit in an upright posture and

can look surprisingly thin, especially if 'flattened' against a tree trunk. This is not the rule, however, as sometimes they adopt a more horizontal, bulky stance like Short-eared. Long-eared prefer to settle (and roost) in trees or bushes, often in deep cover, but will also settle on isolated trees or posts and even on the ground, for instance while hunting over open country. They will also roost on the ground (Witherby *et al.* 1938-41). Short-eared are typically seen in very open habitats, where they roost on the ground in rough grass or vegetation which provides some cover, but they also often perch on walls, posts or isolated trees or bushes while hunting. They will even enter well-wooded areas to alight on branches under the dark canopy, where they can watch over or 'listen to' an open ride between the trees. Distinction between the two species by habitat is far from clear cut.

Table 1. Summary of distinctive features of Long-eared Owl *Asio otus* and Short-eared Owl *A. flammeus*

	LONG-EARED OWL	SHORT-EARED OWL
Upperparts	Darkish and uniform, with <i>less prominent dark carpal patch</i> and rich buff patch on primaries of upperwing	Pale, mottled or blotched with <i>prominent dark carpal patch</i> and pale buff to white patch on primaries of upperwing
Underparts	Streaked on buff extending to ventral area, <i>appearing uniform at distance</i> . Underwing appears off-white or whitish	Pale buff, with dark streaks confined mainly to upperbreast and neck— <i>dark at front, paler behind</i> . Underwing appears whitish
Flight	Hunts with a few wing beats followed by long glide, wings held <i>straight in line</i> and level with body, or less often in shallow 'V'	Hunts with a few wing beats followed by glide but more wavering, wings <i>held forward</i> and often in shallow 'V', but also occasionally level
Tail	Short and <i>square</i> with <i>dense darkish barring straight or smoothly curved</i>	Shortish and slightly wedge-shaped with <i>dark barring like shallow arrows</i>
Eyes	Deep orange at close range	Pale yellowish
Face	Buff with pale area down centre and black stripes extending to prominent ear tufts, making face appear elongated	Bulbous, pale whitish with dark areas around eyes, ear tufts not usually visible and never prominent

It is our hope that these guidelines will stimulate observers to scrutinise all *Asio* owls more closely, as we are confident that many Long-eared are passed over as Short-eared, particularly at coastal localities during the spring and autumn migrations. We also hope that every opportunity will be taken by owl-watchers to refine or improve on our observations.

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Spotted Sandpipers nesting in Scotland

Gordon E. Wilson

In June 1975, I discovered a pair of Spotted Sandpipers *Tringa macularia* nesting in Scotland, the first such record of an American species in Europe.

SEQUENCE OF EVENTS

On 15th June 1975, while on holiday in the Highland region of Scotland, I visited a sheltered bay and saw a bird which at first glance I took to be a Common Sandpiper *T. hypoleucos*. It alighted on a boulder in the centre of a freshwater stream flowing over the gently sloping seashore, and observation through binoculars revealed prominent black spots on its white throat and breast. It was then immediately identifiable as an adult Spotted Sandpiper.

When I returned on 17th June, the Spotted Sandpiper was feeding in the intertidal zone, about 200 metres from where I had first seen it. This time, I obtained excellent views at close quarters and in good light, including direct comparison with a Common Sandpiper, when the Spotted Sandpiper encroached on a grassy area where the latter had chicks and the two adults skirmished.

On 27th June, I saw the bird again, within 200 metres of the initial location, feeding right at the water's edge, on the seaweed uncovered by the receding tide. On being approached, it flew about 100 metres up the stony beach, calling as it went, and alighted well above high-water mark in a small sandy area surrounded by vegetation. Following cautiously, I found that it had disappeared from view, yet had not flown out of the area. After a few more paces forward, I flushed it from rank vegetation in front of me. The behaviour of the bird, which alighted on a log 15 metres away, calling anxiously, suggested to me that it was nesting. I quickly and carefully searched the dense vegetation, located a nest containing four eggs at ground level, and then retired. The bird returned within three minutes, alighted about five metres from the nest and walked directly to it. Later the same day, I returned with a local ornithologist and we saw two adult Spotted Sandpipers on the shore, confirming that a pair was breeding and ruling out the possibility of a female Spotted nesting alone or paired with a Common Sandpiper. The following day, 28th June, another local birdwatcher verified the identification.

On returning from my holiday, I informed the secretary of the Rare Breeding Birds Panel, Dr J. T. R. Sharrock, of my discovery and he put me in touch with another member of the panel, R. H. Dennis. Mr Dennis visited the nest site on 2nd July, located the

nest with four eggs and observed both adults, one of which returned to the nest and remained there.

By 3rd July, the second local observer found that the weeds in which the nest was located had grown considerably after two days of rain. Although cattle were grazing on the shore dangerously close to the nest, an adult Spotted Sandpiper was seen returning to it. He could find no sign of an adult on 7th July, however, and the nest was apparently deserted, probably because of the close approach of grazing cattle. Mr Dennis paid a second visit on 30th July. The adults were not seen, the weeds around the nest were flattened, either by cattle or heavy rain, and it was unquestionably deserted. He removed the eggs and sent them to the Royal Scottish Museum, Edinburgh. Two were found to be infertile, but the other two contained partly developed embryos.

DESCRIPTION OF ADULTS

The following characters of the adults were noted in the field. They were compared with Common Sandpipers, which they closely resembled in size, shape, general coloration and behaviour.

The plumage of the sexes was alike. The forehead, crown, nape, wings and back were olive-brown, slightly greyer than of the Common Sandpiper, and finely marked with short, dark bars or spots on the wings and back. A white bar along the wing was revealed in flight, like that of the Common Sandpiper, but it had a darker, almost black border towards the trailing edge, which the other species lacked. The tail was not noted in detail, but was short in relation to the size of the bird, like that of the Common Sandpiper, and appeared brown with whitish edges.

The chin, breast, throat, belly, flanks and undertail coverts were white, uniformly covered with distinctive, large, circular, black spots. These were estimated to be about 3 mm in diameter on the breast and spaced at about the same distance, but were smaller on the chin and throat. A prominent, crescent-shaped, white supercilium extended over the eye from near the base of the bill almost to the nape.

The bill was straight, approximately 4 cm in length, and was yellow with a dark tip. In some lights, it appeared yellowish-orange with a dark tip, but never brownish like that of the Common Sandpiper. In good light, the legs looked light flesh-brown.

The only call note heard was a piping, disyllabic 'weet-weet', uttered while on the wing. It was reminiscent of that of a Common Sandpiper, but not so strong. This was probably the alarm call, since it was heard only when the bird was flushed.

Although usually remaining on the ground, walking about the stony shore and actively feeding, an adult twice alighted on a

stone wall about $1\frac{1}{2}$ metres high, where it rested for a while. The body was normally held still and only on two brief occasions was the bobbing motion of tail and body, so characteristic of the Common Sandpiper, observed. The normal flight was strong and direct, but on several occasions one was seen to fly with rapid wing beats while holding the wings rather stiffly below body level, alternating this action with short glides. The adult flushed from the nest flew some distance, but returned as soon as the intruder retreated; its mate gave no warning of an intruder, but retired quietly along the shore.

Feeding was entirely by picking among patches of seaweed and jetsam left by high tides, and at no time by probing or turning seaweed over.

NEST AND EGGS

The nest site was close to a gently sloping seashore in a small sheltered bay, within 400 metres of a small village and 200 metres of a freshwater stream flowing into the sea. The nest was about 100 metres back from high-tide mark, in an extensive patch of dense vegetation about 40 cm high and consisting predominantly of fat-hen *Chenopodium album*. It was on the ground among the damp bases of the weeds, and constructed of broad blades of grass and plant stalks, rather loosely assembled, but forming a well defined cup.

The four eggs, arranged in the nest with their smaller ends toward the centre, were a light buff-brown, heavily spotted and blotched all over with dark reddish-brown. Measurements taken later showed that the dimensions (in mm) were: 317×232 , 322×239 , 331×235 and 332×239 .

DISCUSSION

The Spotted Sandpiper is widespread and common in North America, breeding in almost the whole of the United States and Canada, and winters in Mexico, Central America and the northern countries of South America (Witherby *et al.* 1940, Robbins *et al.* 1966). Up to the time of these Scottish observations, however, the species had been recorded as a vagrant on only 26 occasions in Britain and Ireland, mostly from mid-August to mid-November and during May-June.

Although the proved breeding of Spotted Sandpipers in Scotland was a very exciting event, the nesting of a species of American wader on this side of the Atlantic was not entirely unexpected. The number of American waders recorded in Britain and Ireland has increased dramatically in recent years. About 340 individuals were noted up to 1957, but 1,015 were seen in the next 15 years (207 during 1958-62, 311 during 1963-67 and 497 during 1968-72)

(Sharrock and Sharrock 1976). This dramatic increase has been linked by Williamson (1974, 1975) with a southwards shift by about 10° in the mean path of North Atlantic depressions between the 1900's and 1960's. Most American waders are seen in Ireland and western Britain, however, which are areas where watching was relatively far less intense before the 1960's. Sharrock and Sharrock (1976) have also shown that the increase during 1958-72 merely matches the increase in the number of all rare birds, both Palearctic and Nearctic vagrants being recorded far more often by the growing band of field observers, who have gained in competence and awareness of the possibility of finding American birds. It nevertheless remains a fact that the numbers of American waders recorded in recent years has led to speculation that breeding could occur.

Spotted Sandpipers, with 15 records during 1958-72, rank rather low in the list of American species recorded here; figures for the same 15-year period for the six commonest were 488 Pectoral Sandpipers *Calidris melanotos*, 101 Buff-breasted Sandpipers *Tryngites subruficollis*, 82 White-rumped Sandpipers *C. fuscicollis*, 81 dowitchers *Limnodromus griseus* and *L. scolopaceus* combined, 62 Lesser Yellowlegs *Tringa flavipes* and 52 Wilson's Phalaropes *Phalaropus tricolor*. After a summer record of a Pectoral Sandpiper in Caithness in 1973, one was seen displaying in the same county in late May 1974 (Byrne and Mackenzie-Grieve 1974, Dennis 1975); the Pectoral Sandpiper and the Wilson's Phalarope have been the species most tipped to nest in Europe. Sharrock (1971, 1974) argued, from the high proportion of British east coast (compared with west coast and Irish) records, that some Pectoral and Baird's Sandpipers *C. bairdii* reached Britain by moving west from Siberia; the establishment of a small breeding (or at least summering) population in northern Europe now seems equally likely, and this has also been proposed to explain the early autumn records of White-rumped Sandpipers on the British east coast (Sharrock and Sharrock 1976).

Although observed here far less commonly than some other American waders, Spotted Sandpipers are not such long-distance migrants as the commoner ones and this could aid the meeting of individuals to form pairs, which must be the greatest problem confronting potential breeders with a tiny population. In retrospect, it is probably significant that Spotted Sandpipers have remained at localities for long periods (an average of 17 days for those seen during 1958-72), and both summering (Lincolnshire/Norfolk in June-August 1971: Smith *et al.* 1972) and wintering (Dorset in December-March 1973/74: Smith *et al.* 1975) have occurred in Britain.

One may hope that the record documented in this paper marks

the first instance of a natural enrichment of the breeding avifauna of Europe by other Nearctic species.

ACKNOWLEDGEMENTS

I wish to express my thanks to Peter Standley and Dr J. T. R. Sharrock for their helpful advice on recording my observations and to R. H. Dennis for the effort he made to verify my record. I also wish to thank the other two independent ornithologists who confirmed my observations; unfortunately, they must remain anonymous, since to publish their names would disclose the locality of the nest site, to which there seems a chance that the birds will return in another year. I am grateful to Dr Sharrock for expanding the discussion section of this paper.

SUMMARY

A personal account is given of the discovery of a pair of Spotted Sandpipers *Tringa macularia* nesting in Scotland. Breeding was unsuccessful, the nest with four eggs (two of which were fertile) being deserted, perhaps because of trampling by cattle or after heavy rain.

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Distinguishing characteristics in the burrow-calling of Storm and Leach's Petrels

Joan Hall-Craggs and P. J. Sellar

Where the breeding grounds of the Storm Petrel *Hydrobates pelagicus* and Leach's Petrel *Oceanodroma leucorhoa* overlap in southern Iceland, the Faeroes, Shetland and some Atlantic islands off the north-west coast of Scotland, it is useful to be able to identify the species aurally, since both are of nocturnal habit and nest in similar habitat: in the seclusion of burrows or in sites such as crevices between and beneath rocks or in ruined walls.

While in the nest burrow, both species utter long-sustained *churring* or *purring*, interspersed at regular intervals by notes of relatively long duration which are presumed to result from breath inspiration (figs 1a, b, c; 2a, b, d). Analyses of recordings show that both members of the pair can produce these sounds, and may do so simultaneously (figs 1b, 2d). Imprecisely timed duetting also occurs when one bird *churrs* while the other gives contrasting calls, though the latter, like the *churring*, may occur independently.

The contrasting calls of the Storm Petrel comprise three discrete units forming a figure of from 0.7 to 1.0 seconds duration (figs 1c, d). These calls have been given a number of onomatopoeic renderings, but to the present authors they sound 'ke-kaah-kek' and have a harsh, almost snarling quality. Leach's Petrel gives two types of contrasting call—the flight call, which more often occurs between or at the end of bouts of *churring* (fig. 2c) and which may be uttered by either sex, and a food-begging call given by the female (figs 2b, c). The onomatopoeia for the flight call 'her ki-ti wer kee pit-cr-r-r-al' is a compromise between various renderings to be found in the literature, but none of these, including the present version, gives much idea of the tonal quality of the sounds. Fraser Darling's (1940) description—'a staccato, musical laugh'—is probably the best. Recognition of this call is most easily effected by memorising its highly distinctive temporal pattern, which can be represented in a morse-code-type notation: - . . . - It can be expressed more explicitly in musical notation:



where > indicates a stressed sound and the dots indicate staccato performance. By the same means, individual variation may also be expressed unequivocally, for example:



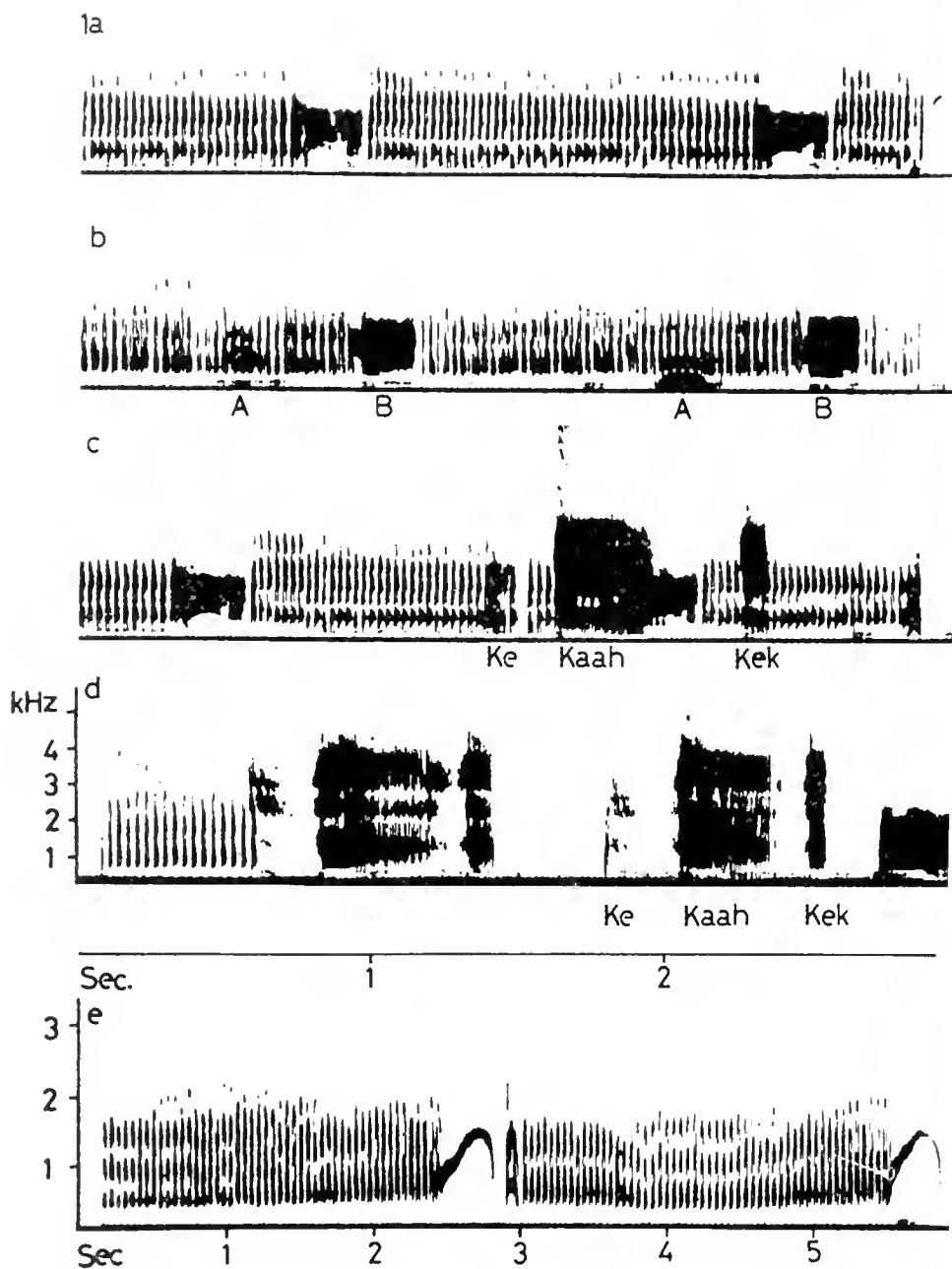


Fig. 1. Vocalisations of the Storm Petrel *Hydrobates pelagicus* (a,b,c,d) and Leach's Petrel *Oceanodroma leucorhoa* (e). a. Individual *churring*: unit rate 36 per second; 'breath notes' at 1.58-second intervals. b. Two individuals *churring* simultaneously: 'A' 'breath notes' of background bird, 'B' of foreground bird. c. Two individuals, one *churring* and the other calling 'ke-kaah-kek': the beginning of the second 'breath note' of the *churring* bird is overlapped by the long 'kaah' of the calling bird. d. The calls 'ke-kaah-kek' occurring alone at the end of a bout of *churring*. e. The *churring* of Leach's Petrel: analysis made from double-speed playback to show the time interval between 'breath notes'—3.06 seconds; unit rate of *churr* 21 per second (a, c from recording made by E. D. H. Johnson, Jersey, July 1958; b, d from recording made by P. J. Sellar, Shetland, July 1970; e from recording made by P. J. Sellar, Iceland, June 1968)

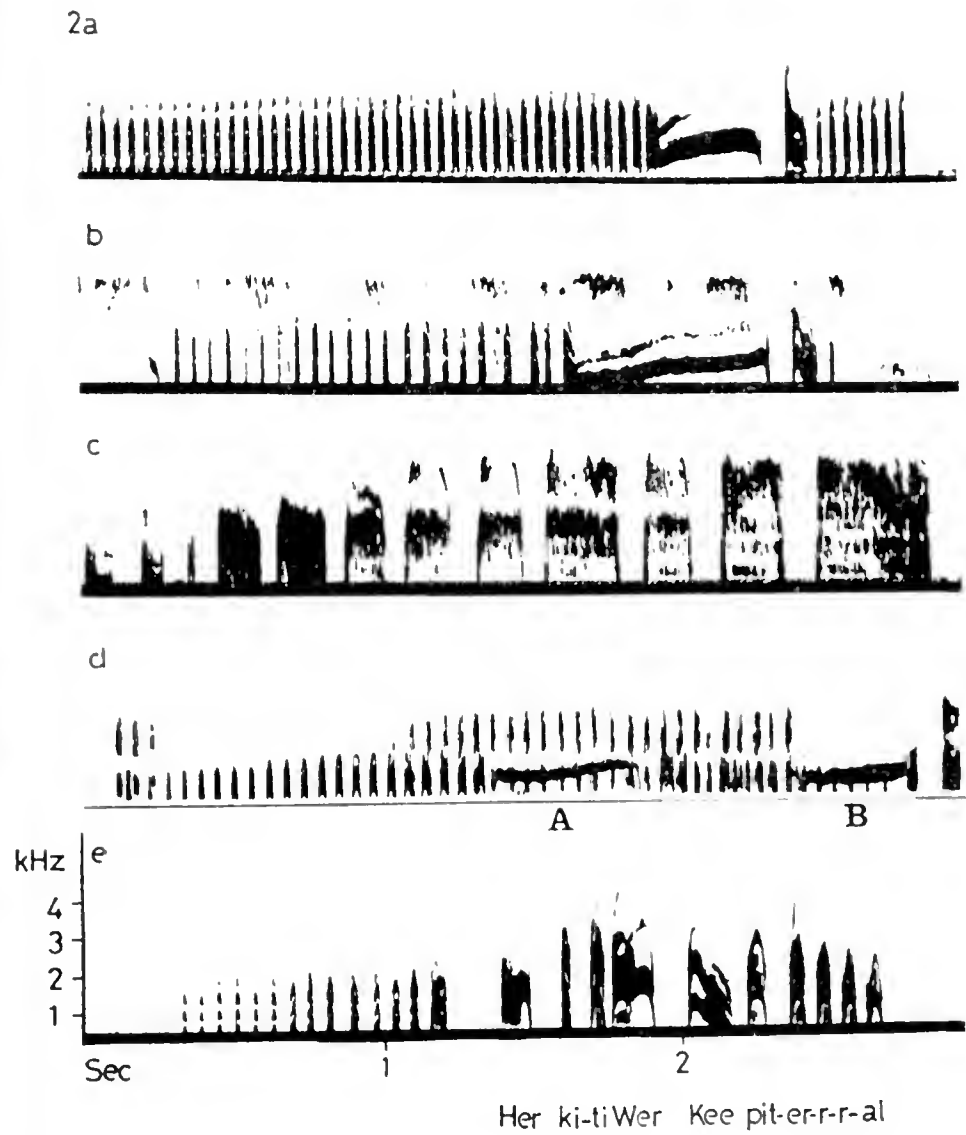


Fig. 2. Vocalisations of Leach's Petrel *Oceanodroma leucorhoa*. a. Part of fig. 1c analysed at normal playback speed. b. Two individuals: the male *churring* and breathing while the female in the background gives food-begging calls. c. High intensity food-begging following a bout of *churring*. d. Overlapping *churring* by two individuals from 1 second onwards: 'A' 'breath note' of background bird, 'B' of foreground bird. e. The flight call following a bout of *churring* (all from recording made by P. J. Sellar, Iceland, June 1968)

The food-begging calls of the female Leach's Petrel closely resemble those of the young. The individual sounds are of fairly long duration, 0.15 to 0.4 seconds, and are uttered at a rate of approximately two to four per second. They almost defy description, but have a forced, wheezing, rasping character with rather abrupt starting and stopping.

There are three distinguishing factors between the vocalisations of the two species in the actual *churring* and 'breath notes': (1) unit rate per second in the *churr*, (2) time interval between the onset of 'breath notes' and (3) duration of the 'breath notes'. As might be expected, the smaller Storm Petrel has a consistently higher unit rate and shorter 'breath notes' occurring at briefer time intervals. Table 1 displays these temporal details, which are sufficiently uniform within the four recordings of each species to be considered reliable for identification purposes. It can be seen that some varia-

Table 1. Churring and 'breath notes' of Storm Petrel *Hydrobates pelagicus* and Leach's Petrel *Oceanodroma leucorhoa*, showing units per second in *churr*, duration of 'breath notes' and time interval between the two

Source	Recordist	Place and date	Units per second in <i>churr</i>	Time interval between onset of 'breath notes' (seconds)	Duration of 'breath notes' (seconds)
STORM PETREL					
Private tape	P. J. Sellar	Shetland, July 1970	30 Bird A	1.63—1.66	0.2
			38 Bird B	1.4 —1.61	0.21
BLOWS tape	L. Shove	Skokholm, May 1965	36	1.6 —1.62	0.25—0.28
BBC disc 25059	E. D. H. Johnson	Jersey, July 1958	36	1.58	0.25
BBC disc 25354	A. Aasgaard	Norway, August 1970	38—40	1.46—1.8	0.22—0.25
		RANGE	30—40	1.4 —1.8	0.2 —0.28
LEACH'S PETREL					
Private tape	P. J. Sellar	Iceland, June 1968	16—22	3.06—3.8	0.38—0.65
BBC disc 15196	L. J. Kinlen	Iceland, Sep. 1955	15	4.3	0.5
BBC disc 25011	D. I. M. Wallace	St Kilda, July 1956	22	4.08	0.53—0.64
BBC disc 25011	J. Lindsay	St Kilda, July 1956	21	3.14	0.56
		RANGE	15—22	3.06—4.8	0.38—0.65

tion occurs within the calling of an individual, as well as between the calling of different individuals of the same species.

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An estimate of the world breeding population of the Razorbill

Clare S. Lloyd

INTRODUCTION

The Razorbill *Alca torda* is confined to the northern Atlantic, breeding on the west coast from about 73° N (west Greenland) to 43° N (Maine) and in the east from about 78° N (Spitsbergen) to 49° N (Brittany) (Voous 1960). Razorbills and Guillemots *Uria aalge* suffer heavy mortality through oil and other pollution at sea (e.g. Bourne and Bibby 1975) and declines have been reported in many breeding populations since the war (Cramp *et al.* 1974). Available estimates of various populations are given in table 1. Owing to extreme difficulties in counting Razorbills accurately, the figures must be regarded only as approximate, but they do form a basis for comparison with future counts, which, it is hoped, will be considerably more accurate.

Most published counts are expressed as 'pairs' although there is sometimes doubt as to how these figures were obtained. In order to use comparable figures for all areas, I have converted the few counts given as 'individual birds' (actually the better counting unit) to pairs. Observations of birds present at one breeding colony in south Wales in 1972 and 1973 showed that, on average, a count of 100 birds on the cliffs during the main part of the breeding season (June) represented 56 breeding pairs; about 35% of the birds on land at this time were non-breeders and a small number of off-duty mates were also present throughout the day (Lloyd 1973, 1976). Observations at other colonies in Britain and Ireland since have given broadly similar results. Thus, where counts of birds are clearly indicated, I have multiplied these by 0.56 to obtain an estimate of the number of pairs.

THE COLONIES

West Greenland, Canada and USA

Bédard (1969) gave a total of 47,000 pairs of Razorbills in the western Atlantic colonies but some of the counts he included were outdated. A more complete survey of these colonies by Brown *et al.* (1975) amounted to only 20,664 pairs, although figures for 33 of the 59 colonies they listed, which account for 39% of the total, were pre-1967. Earlier counts are available for 14 of the colonies covered by Nettleship *et al.* in 1967-74 and these suggest extensive changes in the last 10 to 20 years. Numbers had apparently declined at seven colonies, remained stable at three and increased at the rest; there had been a general reduction of about 50%.

Table 1. An estimate of the world breeding population of the Razorbill
Alca torda

Figures for Greenland, Canada and Maine include estimated numbers of pairs (in brackets) from counts of individuals. The figure for north USSR is incomplete; that for Norway a maximum, assuming a 33% decline in only 12% of the population; and for Britain and Ireland a minimum (see text). Year of census is given only if known to be different from that in reference. Nomenclature after Salomonsen (1944)

Area	Subspecies	Approximate no. of breeding pairs	Reference	Year of census
Greenland	<i>A. t. pica</i>	567(417)	Jocensen and Preuss 1972	1965
			Salomonsen 1950/51	1936, 1949
Canada	<i>A. t. pica</i>	20,636(4,688)	Brown <i>et al.</i> 1975	1928-74
Maine	<i>A. t. pica</i>	28(28)	Brown <i>et al.</i> 1975	1971-74
North USSR	<i>A. t. pica</i>	2,200	Gerasimova 1961	
Norway	<i>A. t. pica</i>	25,440	Brun 1969, 1971	1968-70
Sweden	<i>A. t. torda</i>	4,000	V. Olsson <i>in litt.</i>	1975
Finland	<i>A. t. torda</i>	875	Lippens and Wille 1972	
Denmark	<i>A. t. torda</i>	200	Franzmann 1974	
Iceland	<i>A. t. islandica</i>	5,000	see text	
Faeroe Islands	<i>A. t. islandica</i>	5,000	B. Olsen <i>in litt.</i>	1974
Britain and Ireland	<i>A. t. islandica</i>	144,000	Cramp <i>et al.</i> 1974	1969-70
France	<i>A. t. islandica</i>	100	Brien 1970	
ESTIMATED TOTAL		208,046		

The best documented change in the North American Razorbill population has occurred on the north coast of the Gulf of St Lawrence, where regular surveys at seven sites have shown a decline from 16,216 individuals in 1960 (Moisan 1962) to 14,950 individuals (92%) in 1965 (Moisan and Fyfe 1967) and only 4,320 individuals (27%) in 1972 (Nettleship and Lock 1973). This decline has been tentatively attributed to the effects of oil pollution and of toxic chemicals in the birds' diet.

Spitsbergen

'Small numbers of Razorbills bred in southern Spitsbergen up to 1968' (Lovenskiold 1963), though there has been no recent count. At least eight pairs bred on Bear Island in 1970 (Brun 1970) where 'very small numbers' had been reported in 1932 (Bertram and Lack 1933).

USSR

The only available record of the size of the breeding population in northern USSR (Gerasimova 1961) is outdated and refers just to

the Murmansk coast; no records have been found for the White Sea, where the species also breeds (Voous 1960).

Iceland

Hachisuka (1927) reported Razorbills to be more common in the south; however 'although the Razorbill is a fairly common bird . . . it is less numerous than both the Common and Brunnich's Guillemots [*U. lomvia*]' (F. Gudmunsson *in litt.* 1973). The population is tentatively estimated here as 5,000 pairs.

Faeroe Islands

Little is known of the population on the Faeroe Islands. In 1974 Guillemots outnumbered Razorbills by about 100:1 on the cliffs and 100-150:1 on the sea, and the total population of Razorbills was estimated to be 5,000 pairs (B. Olsen *in litt.*).

Norway

Brun (1969) gave details of all colonies in Norway in about 1968, but by 1970 numbers had declined by 33% in at least one colony in southern Norway (Runde) which previously held 12% of the total population (Brun 1971). Brun suggested that this order of decline could be expected for other colonies in the area, owing to pressures from oil pollution and hunting and to birds becoming caught in fishing nets.

Finland

Merikallio (1958) suggested that the Razorbill breeding population was half what it had been in the 1930's, as the cold winters of 1939/40 and 1941/42 had had a disastrous effect on the birds (von Haartman 1947; see also Lloyd 1976). The total population is now about 875 pairs (Lippens and Wille 1972).

Sweden

Wöhler (1919) reported 7,500 pairs of Razorbills breeding in the largest colonies on the islands of Stora Karlsö in 1918, although it is probable that this figure was greatly exaggerated. About 1,500 pairs were estimated to be nesting there in 1975 (V. Olsson *in litt.*). Human disturbance and adverse weather conditions are the main causes of the low numbers and breeding success at other colonies (Olsson 1974).

Denmark

The Danish breeding population was also affected by the cold winters. Paludan (1947) gave the following counts of numbers breeding at Christiansø in the south Baltic: 318 pairs in 1939

(Salomonsen 1943 put it at 2,200 pairs), 161 pairs in 1940, 175 pairs in 1941, 59 pairs in 1942 and 64 pairs in 1943. Numbers appeared to recover at this and other Baltic colonies, and Kartashev (1960) gave a count of 318 pairs, which may have declined since (see table 1).

Germany

Twelve pairs of Razorbills bred on the island of Heligoland in 1939, though by 1956 these had declined to a single pair (Vauk 1957); this colony is now extinct (Dr W. R. P. Bourne *in litt.*).

Britain and Ireland

'Operation Seafarer' in 1969/70 gave a total of 144,000 pairs of Razorbills. This consisted of 108,736 pairs and 35,147 individual birds (approximately 19,682 pairs), but excluded two colonies of order 1 (1 to 9 pairs), six colonies of order 2 (10 to 99 pairs), three colonies of order 3 and three colonies of upper order 3 (100 to 999 pairs), one colony of low order 4 (1,000 to 9,999 pairs) and one colony of order 5 (10,000 to 999,999 pairs). Together these accounted for an estimated minimum of 17,310 pairs. Thus the total population was probably in the region of 145,730 pairs. Results from an annual monitoring scheme at about 50 sites since suggest that numbers are currently stable.

France

About 450 pairs of Razorbills bred on Les Sept Îles in Brittany before the *Torrey Canyon* oil spill in 1967, but these were reported to have declined to only 50 pairs (Monnat 1969) and unfortunately the colony has shown little sign of recovery.

DISCUSSION

At least 70% of the world population of Razorbills breeds in Britain and Ireland; the coasts of Canada/New England and Norway also hold 9% and 12% respectively of the total. By contrast, roughly about 10% of the world population of the far more numerous Puffin *Fratercula arctica* also breeds in Britain and Ireland (Harris 1976), although all these figures must be regarded as approximate since auks are notoriously difficult to count accurately. Throughout much of its range, the Razorbill, like the Puffin, is reported to have declined in breeding numbers in recent years, though the timing and magnitude of these declines are impossible to assess in the absence of reliable early counts.

Razorbill populations are especially vulnerable to increased mortality. Usually only about 10% of the breeding birds die each year (Lloyd 1974, 1976, Lloyd and Perrins *in prep.*); a slight increase

in mortality of pre-breeding or breeding birds can drastically affect breeding population size. Moreover, because relatively few young are normally recruited into the breeding population each year, this can take several years to recover from one 'bad' year.

Razorbills face threats of increased mortality from several different sources. Like the other auks which spend much of their time swimming and diving on the sea, they are regularly affected by oil pollution. Both this and other forms of marine pollution, such as that due to toxic chemicals, affect the birds throughout most of their range, but tend to be especially serious in the more enclosed sea areas. Ringing recoveries of British and Irish Razorbills and other similar observations (Royal Society for the Protection of Birds—Seabird Group beached bird survey results) have shown that mortality due to oiling is especially heavy in the North Sea and English Channel (Lloyd 1974). In addition, many birds in southern Scandinavian and Mediterranean waters are shot, and large numbers are caught in fishing nets off south Norway, in the Bay of Biscay and off west Greenland. These causes of mortality can affect local breeding birds or those from distant colonies wintering or spending their pre-breeding years in the area.

Of these factors, oiling probably has the most important effect on Razorbill population size; since the war it appears to have been one of the main causes of the local declines in both the east and west Atlantic (Nettleship and Lock 1973, Cramp *et al.* 1974). There is some evidence that Razorbill mortality due to oiling is lower now, at least in north European waters, than it was in the 1950's and 1960's (e.g. Bourne and Devlin 1970, Lloyd 1976). Whether this trend will continue with large-scale extraction of oil from the continental shelf remains to be seen.

As counting methods improve, the value of regular population censuses at even a small sample of breeding colonies increases. Such censuses, aimed at monitoring the effect of changing mortality rates due to oiling or any other cause, are conducted at present in Canada by the Canadian Wildlife Service and in Britain and Ireland through the RSPB and the Seabird Group. In Britain and Ireland we are responsible for a large proportion of the world's Razorbills, and monitoring is essential if local declines and their possible causes are to be identified before colonies become extinct.

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I am very grateful to the Seabird Group for permission to use unpublished 'Operation Seafarer' data; to B. Olsen (Faeroe Islands), V. Olsson (Sweden) and A. Pape Møller (Denmark) for supplying updated estimates of Razorbill colonies; and to Dr M. P. Harris for his most helpful criticism of an earlier draft of this paper.

SUMMARY

Available estimates of numbers of Razorbills *Alca torda* in both east and west Atlantic colonies are presented. Razorbills, like other auks, are notoriously difficult to count accurately so that counts can only be approximate. About 70% of the world population of the species breeds in Britain and Ireland and most of the rest in North America (9%) and Norway (12%). The vulnerability of Razorbills to increased mortality, especially due to oiling, and hence the importance of regular population monitoring are stressed.

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Obituary

Sir Julian Sorell Huxley, MA, DSc, FRS (1887-1975)

Julian Huxley was born in London on 22nd June 1887 and died there on 14th February 1975. During the intervening 87 years this brilliant and remarkable man, driven on by an indefatigable energy and a self-imposed need to live up to what he thought was expected of him, became a famous scion of a famous family which included his grandfather, T. H. Huxley, the colleague and defender of Charles Darwin, and his younger brother, Aldous, one of the most imaginative writers between and after the two wars. Julian Huxley rose to be an international figure as an author, a broadcaster and, above all, a scientist who combined an insatiable curiosity and an ability for original research with a remarkable memory, great courage in stating his views and a flair for synthesising complicated subjects into a readable and readily assimilable form. He was a biologist, a zoologist, an evolutionist and, at heart, especially an ornithologist.

Educated at Eton and Balliol, Oxford, Julian Huxley began an academic career as lecturer in zoology at Balliol (1910-12) and was then appointed assistant professor at the Rice Institute at Houston, Texas (1912-16), but he broke that off to join the Army Intelligence Corps in the First World War and served on the Italian front. He returned to Oxford in 1919 as senior demonstrator in zoology and in 1925 became professor of zoology at King's College, London. Two years later, however, he resigned to devote his time to writing and research. That was to be his last full-time academic post, although he was Fulldean professor of physiology at the Royal Institution from 1926 to 1928.

Among many other positions, some full-time, some part-time and some honorary, he was secretary of the Zoological Society of London from 1935 to 1942; a regular member of the radio 'Brains Trust' during the Second World War, which made him a household name; the first director-general of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) from 1946; and a founder editor of the well-known and highly praised 'New Naturalist' series. He was also one of the founders of the British Trust for Ornithology and served as a Council member of both that body and the British Ornithologists' Union.

His many books included *The Individual in the Animal Kingdom* (1912); *The Science of Life* (1929), written jointly with that other visionary, H. G. Wells, and the latter's son, Professor G. P. Wells; *African View* (1931), based on a visit to East Africa to advise on native education, which led, in turn, to a lifetime of work for the

conservation of African wildlife; *Problems of Relative Growth* (1932), a milestone in its own field; and *Evolution, the Modern Synthesis* (1948), probably his best-known publication which still stands as the most comprehensive work on evolution, being an astonishing distillation of a mixture of published data and first-hand knowledge put together with such clarity and penetration that it welds into a vivid composite. Near the end of his life he published his autobiography under the title *Memories*: those who seek to know more of him as a man and to understand his achievements should turn to that.

Ornithology owes him much more than the present generation can realise, particularly in the field of bird behaviour. The first of several highly original papers was on the courtship of the Redshank *Tringa totanus* (*Proc. Zool. Soc. London*, 1912: 647-655) and two years later he followed it with his revolutionary study of the Great Crested Grebe *Podiceps cristatus* (*Proc. Zool. Soc. London*, 1914: 491-562). This was an outstanding contribution, years ahead of its time, although it was based largely on observations made during a single fortnight. With it he began the simple but fundamental procedure of inventing names for the displays he saw and in this he was also influenced by the field work of his great contemporaries, Edmund Selous and H. Eliot Howard. Another major paper dealt with the courtship of the Red-throated Diver *Gavia stellata* (*J. Linn. Soc. Zool.*, 1923, 35: 253-292) and he published a series of others in *British Birds* and *The Ibis* on the courtship and breeding behaviour of the Little Grebe *Tachybaptus ruficollis* (1919), the Grey Heron *Ardea cinerea* (1924), the Avocet *Recurvirostra avosetta* (1925) and, in conjunction with F. A. Montague, the Oystercatcher *Haematopus ostralegus* (1925) and the Black-tailed Godwit *Limosa limosa* (1926).

From all this it can be seen that his favourite birds were divers, grebes and waders, but he was also interested in territory (*Brit. Birds*, 27: 270-277), threat and warning coloration (*Int. Orn. Congr.*, 8: 430-455) and, above all, natural selection, geographical isolation and species formation, on which he wrote a great deal. In this field, it was he who introduced the term 'cline' to cover gradations in characters within a species from one end of its range to the other (*Nature*, 142: 219): although this term has no position in nomenclature, it is an invaluable taxonomic tool widely used as a means of expressing geographical variation. He also published a book on *Bird Watching and Bird Behaviour* (1930) and later in the 1930's, jointly with R. M. Lockley, produced a film on the life of the Gannet *Sula bassana*, which was again a pioneer effort; the commentary was spoken by Julian Huxley himself and the clear and evocative presentation of the whole was to make it the fore-

runner of modern films on natural history. Not surprisingly, it won an Oscar.

Despite his greatness, and Julian Huxley was one of the few men I have met to whom this overworked word can be applied, he remained at heart a plain man with an earthy sense of humour, a gift for making science simple and a willingness, indeed a desire, to help lesser mortals in any way he could. In the 25 years before the Second World War he had done as much as anyone to lift ornithology from an amateurish pastime to a serious science, yet he retained his love of just watching birds for their own sake. I recall his enthusiasm when he found some White-winged Black Terns *Chlidonias leucopterus* on passage in the Coto Doñana, Spain, in 1956 and, even more, his delight at the Sinai Rosefinches *Carduelis syriacus* at Petra, Jordan, in 1963. At Petra, too, he showed the diversity of his interest by proving a fund of information on Nabataean history, as might be expected from one who had published the first pictures in colour of the rose-red city in his *From an Antique Land* (1954).

Many honours came Julian Huxley's way during his lifetime, but only a few can be mentioned here. In 1938 he was elected a Fellow of the Royal Society and after the war was awarded its Darwin Medal. In 1958 he was knighted, a recognition richly deserved. In 1971 he received the Godman-Salvin Medal of the BOU, which is the highest award of our senior ornithological society and of which he was only the fourteenth recipient in 50 years. It is, however, the BTO which should be regarded as one of his many memorials and he retained to the end a great interest in its work. Even in 1969, when he was in failing health, I remember his kindness in personally signing many letters to charities and businesses in connection with the Trust's appeal for money to extend and equip its headquarters at Tring, Hertfordshire.

It is indeed a privilege to have known this man and he taught me much in the times I was with him. He is survived by his charming wife, Juliette, who in his later years often had to restrain him from continuing to work too hard, and by his two sons. To them and to us, his loss is incalculable.

I.J.F.-L.

Notes

Nibbling and cloaca-pecking by Moorhens In his paper on the breeding behaviour and biology of the Moorhen *Gallinula chloropus*, N. A. Wood described 'bowing and nibbling' displays, and stated that these actions may occur throughout the year in paired territorial birds (*Brit. Birds*, 67: 109-110).

On 25th August 1974, at Ilse Pool, Sandbach, Cheshire, I observed this performance by two Moorhens standing (see Wood's fig. 6) in five to seven cm of water. The nibbling bird was in immature plumage, and the bowing recipient was an adult. Nibbling was concentrated about the adult's loreal and rectal feathering, on both sides, with frequent attention to the bill. Occasionally the young bird nibbled the adult's crown, neck and upper breast feathers; less frequently the adult nibbled the neck of the immature bird, during which operation the latter would keep quite still. The young bird then attended to feathers on its own right wing before resuming its nibbling of the adult's face. The performance, which I watched for about three minutes, was abruptly terminated when the adult lunged at a second immature Moorhen which swam into close range.

On an earlier occasion, at Attenborough, Nottinghamshire, in April 1973, I witnessed a pair of Moorhens chasing along the bank of a disused gravel pit. The leading bird, presumably the female, halted, and flirted her undertail coverts, allowing the male to peck at her cloaca. I have observed this behaviour in only one other species—the Dunnock *Prunella modularis*—during which the male's attention was more persistent than the brief, though definite, pecking of the Moorhen.

J. S. A. HUNTER

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Ivory Gull landing on water The Ivory Gull *Pagophila eburnea* is known to show a great reluctance to settle on water, presumably because in the bird's arctic habitat the wet plumage would quickly freeze. On 3rd January 1971, however, I observed a first-winter Ivory Gull, at the North Shields Fish Quay, Tyne & Wear, that settled briefly on the water. The bird, in company with Black-headed Gulls *Larus ridibundus*, was making frequent passes at a piece of floating fish offal. Twice, with legs dangling, it almost touched the water but the third time it dropped on to the water for about two seconds, just long enough to snatch up the offal. It settled only this once during several hours' observation.

Dr D. A. Bannerman, in *The Birds of the British Isles* (1954), stated that records of this species settling on water are few, so it is interesting

to note that G. T. Kay described how an immature bird in first-winter plumage had a thorough wash in the normal gull manner at Lerwick Harbour, Shetland, in December 1950. Commenting on this, P. G. Bateson suggested that the Ivory Gull may not acquire distaste for water until it has experienced the icing up of its feathers.

J. M. BAYLDON

42 *High Rifts, Stainton in Cleveland, Teesside*

Mating of Great Spotted Cuckoos On 5th May 1972, my wife and I were driving across the reclaimed marismas towards Sanlucar de Barrameda in south-west Spain, when I noticed a Great Spotted Cuckoo *Clamator glandarius* beside the road. I stopped the car approximately ten metres away and, as we watched, the cuckoo picked a large caterpillar from a shrub at the side of the road. After 'dressing' the caterpillar, the cuckoo hopped across the road and on to a low bank approximately one metre high. We then became aware of a second cuckoo almost directly opposite the car, sitting on a bare patch of earth. As the first one approached, the other began a regular jerking action of its whole body, keeping the wings closed. The first bird hopped behind and then mounted the sitting individual, at the same time offering her the caterpillar which she instantly gripped in her bill, making no attempt to eat it. Both birds retained their grip on the caterpillar and apparently used it to assist the male to maintain his balance during the coition which followed. The male settled low on the female, appearing to grip the sides of her body with his legs and they remained in this position for just over two minutes. The female appeared to break off the coupling by starting to eat the caterpillar, which the male then released. The male dismounted and then proceeded to find, dress and feed to the female two or three more caterpillars, each time stepping on to her back from behind as he passed her the food; she repeated the jerking action each time he approached. Coition took place again in exactly the same manner, lasting almost two minutes, and was quickly repeated, without any pre-coital feeding, a third time, lasting approximately 30 seconds. A passing car then disturbed the male, which flew off but remained in view on the other side of the ditch. We left five minutes later. Throughout the time we watched, approximately 25 minutes, the female remained motionless, apart from the jerking actions and turning her head to grasp the caterpillars.

A. G. CHANNER

42 *Hilley Field Lane, Fetcham, Leatherhead, Surrey*

Swallows hawking insects at 04.00 hours On 1st August 1974, on the outskirts of Swansea, West Glamorgan, at 04.00 hours, I heard the calls of a Swallow *Hirundo rustica*. Peering upwards, I saw

the bird hawking for insects a metre or so above a street lamp. The weather was calm but overcast, and natural light was negligible; sunrise on that day was at 04.32 hours (Bristol). Swallows regularly nest in a barn 45 metres from the place of observation.

DAVID M. HANFORD

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Carrion Crows hanging upside down from electricity cables

In the Staplehurst area of Kent, on 26th December 1973, I was surprised to see a Carrion Crow *Corvus corone* hanging upside down from an electricity cable. Two others were also perched on the wires and several more were feeding on the ground. Three days later, 8 km east of Staplehurst, I saw another Carrion Crow hanging upside down from an electricity wire. Again there were others both on the wires and on the ground. In this latter instance the bird righted itself, thus completing a somersault. I suggest that these birds were 'playing' and derived 'pleasure' from their experience rather in the way that Ravens *C. corax* appear to enjoy aerobatic tumbling. The only references I can find relating to such behaviour among the Corvidae are of a Carrion Crow perching upside down (*Brit. Birds*, 46: 378, which also refers to *Brit. Birds*, 42: 327); a Rook *Corvus frugilegus* somersaulting on a wire (*Brit. Birds*, 54: 121-122); and a Rook and a Hooded Crow *C. c. cornix* hanging upside down from wires (*Brit. Birds*, 57: 182-183).

D. ELPHICK

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Treecreepers feeding on fat I refer to an earlier note (*Brit. Birds*, 67: 515-516) concerning Treecreepers *Certhia familiaris* apparently feeding on fat. For the past five winters (1971/72-1975/76) I have daubed dripping-fat and pressed suet fat on to an old gnarled Scots pine *Pinus sylvestris* in my garden. The fat has attracted a wide variety of birds, in particular Treecreepers, Goldcrests *Regulus regulus* and occasional Firecrests *R. ignicapillus*, wintering Chiffchaffs *Phylloscopus collybita* and wintering Blackcaps *Sylvia atricapilla*. I was surprised, therefore, to see the note cited, as I had regarded this method of feeding to be ideal for normally insectivorous species.

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Blackcap singing in February On several occasions during a mild and sunny spell in February 1975, I heard the beautiful song of the Blackcap *Sylvia atricapilla* in my garden. I also saw the bird on 14th February and again on 18th, when it emerged from cover still singing.

A. P. BROWN

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Great Grey Shrike attacking sick Chaffinch On 11th January 1974, a male Chaffinch *Fringilla coelebs*, unable to fly because of a damaged wing, was brought to me. After two days J. E. Robson and I released the bird in some fields at Hollingworth, Cheshire, where a large mixed flock of finches forage during the winter. A Great Grey Shrike *Lanius excubitor* had been seen in the area a month previously, but we could see no sign of it.

The freed Chaffinch left the cover of a hawthorn hedge and flew weakly some five metres into the field, making distress calls. As we went to the bird's aid, the shrike appeared and alighted beside it. We were about three metres away and our sudden movements startled the predator, which flew to the hedge approximately six metres from us. After 30 seconds the shrike flew off. The Chaffinch's head was badly gashed and it died soon afterwards.

W. M. UNDERWOOD

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This is an interesting example of how quickly some predators notice sick or injured prey. EDS

Starling feeding in manner of Turnstone On 19th July 1971, at Ogston Reservoir, Derbyshire, I saw an immature Starling *Sturnus vulgaris* working a section of stony shoreline in the manner of a Turnstone *Arenaria interpres*. Round stones were rolled aside by the Starling, but flat ones were turned by the bird inserting its bill under the stone and lifting sideways. It was not successful with stones which were about its own size, although it usually moved them a little, but it easily turned stones of at least half its own bulk and picked up what appeared to be worms. M. F. STOYLE
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Starlings have been observed turning over objects in this way. They often appear to combine the lifting with opening the bill, as they do when probing in crevices or among grass roots. EDS

Hawfinch and woodpeckers eating leaves On 23rd April 1973 I observed, from a hide in an East Suffolk wood, a pair of Hawfinches *Coccothraustes coccothraustes* feeding on the ground. When close to the hide, the female stopped feeding, adopted a crouched position, with wings quivering, and began calling. The male approached and passed her what appeared to be a seed, which she ate. Seconds later the female picked up and swallowed a dead leaf from a hornbeam *Carpinus betulus*.

On 13th May, at the same locality, I saw a male Great Spotted Woodpecker *Dendrocopos major* pick and eat fresh hornbeam leaves.

A little later a female Lesser Spotted Woodpecker *D. minor* arrived and began pecking at hornbeam leaves. I can find no reference to this behaviour in the literature.

C. R. NAUNTON

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Crossbills feeding at chimney-stacks During the morning of 7th February 1975, up to six Scottish Crossbills *Loxia curvirostra scotica* were seen feeding in the top branches of a beech outside the front door of Inchbae Lodge in the valley of the Blackwater, about 5 km south-east of Glascarnoch Dam, on the A835 Gorstan—Ullapool road in mid-Ross. At about 11.00 hours, four Crossbills flew from the hoar-frosted beech on to the lodge's television aerial fastened to a chimney-stack, and from there one female went inside the only unfrosted chimney-pot (presumably that connected to the central heating boiler). By the afternoon the sun had removed the frost from the chimney-stack. A female again flew on to the stack and this time worked its way around the top and bottom of the old mortar which held the pots in position. After ten minutes it flew on to the lead ridge of a dormer window, where it went through the same looking and pecking actions but with less enthusiasm. It then moved out over the lichen-covered slates and, pecking more or less continuously, worked its way up to the main ridge and flew back to the beech. Later in the afternoon four Crossbills were seen on the chimney-stack, and two mornings later another six were seen on a second stack; in both cases they were observed picking at the mortar.

According to *The Handbook*, Crossbills are known to include insects in their diet and it was possibly for insects that they were searching the defrosted chimney-pots and stacks.

ELSPETH BARTLETT

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Perhaps the mortar itself (or mineral matter contained in it) was the attraction, as it undoubtedly is when pigeons and House Sparrows *Passer domesticus* eat crumbling mortar or the soft brick of old walls. In the USA, Crossbills are known to feed on salt put out for cattle and to take urine-impregnated snow. Eds

Chaffinches on nut baskets Shortly after we moved to Mull, Strathclyde, in January 1974, we erected a bird table from which two wire nut baskets were suspended. Not surprisingly, tits *Parus spp* and House Sparrows *Passer domesticus* were soon feeding on the sunflower seeds and peanuts which were provided. Four days later, however, Chaffinches *Fringilla coelebs* began visiting the baskets. They were not as agile as the other species but seemed to spend more

time at the food. During disputes the Chaffinches always gave way to tits, but not always to House Sparrows.

RICHARD F. and ELIZABETH M. COOMBER

4 Staffa Cottages, Tobermory, Isle of Mull, Strathclyde

Reviews

A Checklist of the Birds of the World. By Edward S. Gruson. Collins, London, 1976. xii + 212 pages. £3.95.

In 1966, the late David Lack proposed that an international committee should prepare an authorised list of the birds of the world which would be followed by regional publications, so ensuring for non-taxonomists a period of uniformity and stability. This met with a cool response from the taxonomists who argued that the time was not ripe and indeed that it might never be. Only one took up the challenge in part: when Professor K. H. Voous began publication of his list of recent Holarctic bird species (*Ibis*, 115 (1973): 612-638). The need, so clearly seen by Lack, for a modern compact list, still exists, and increasingly attempts have been made to meet it. Four world lists have already appeared in North America (for a full review of the advantages and disadvantages of these, see *Auk*, 92: 818-830). This fifth list is the first to be published in Britain.

The author states clearly that his book is for 'listers and tickers'. He is not a taxonomist and has used standard regional avifaunas where available as his main sources, and followed Peters' *Check-list of Birds of the World* very closely for the sections on families and genera. He has not used the Voous list. Subspecies are not included, nor fossil and extinct species. He states that he has frequently made an arbitrary choice of English common names, in some cases inventing his own. The list includes simple keys to indicate the main avifaunal regions in which each species occurs and the sources he has used. There is also a short selection of notes indicating the decisions he has made in some of the difficult cases, a brief bibliography, and indexes of genera names and English group names.

Inevitably, every taxonomist will criticise some aspects of this, and indeed any, check-list. Many will unit to condemn his decision

to follow R. E. Moreau's suggestion of listing alphabetically the species in each genus. Some species, both new and old, have been missed; some are listed twice and some dubious species included, while there are a number of typographical errors. Despite all this, many, not least the birdwatchers who are travelling more and more widely all over the world, will find it a useful compilation, even though, increasingly as their knowledge grows, they will want to start amending it.

STANLEY CRAMP

Der Zug Europäischer Singvögel: Ein Atlas der Wiederfunde Beringter Vögel. Part 2. By Gerhardt Zink. Vogelwarte Radolfzell, 7760 Möggingen, West Germany, 1975. 130 pages, including 61 of maps. DM62.

Part 1 of this atlas of passerine ringing recoveries was reviewed in *Brit. Birds*, 67: 217-218, to which readers are referred for a description of the scope of this work. Two further parts are in preparation. The second instalment, now available, follows the format of the first, apart from one welcome change: a form of temporary binding replaces the original loose-leaf arrangement. Part 2 covers 26 species—the larks (six), House Martin *Delichon urbica*, Golden Oriole *Oriolus oriolus*, flycatchers (three), accentors (two), pipits (six), wagtails (two) and shrikes (five). Naturally, the space allotted to individual species varies considerably according to the amount of data available, ranging from half a page for the Short-toed Lark *Calandrella cinerea* to 14 pages (including ten of maps) for the Meadow Pipit *Anthus pratensis*. Where justified by numerous recoveries, as in the last-mentioned species, separate maps are given for different areas of origin and seasons of ringing and recovery. The accompanying text is brief but informative, and standardised so that it can be readily understood even by those who have made limited progress with the German language. This atlas draws together a good deal of widely scattered and often barely accessible data from the plethora of European ringing schemes. It is a 'must' for serious students of bird migration.

ROBERT HUDSON

Bird Observatories in Britain and Ireland. Edited by R. Durman for the Bird Observatories' Council. T. & A. D. Poyser, Berkhamsted, 1976. 292 pages; 16 black-and-white plates; several maps and diagrams. £5.00.

This book is a description of bird observatories and their work. It covers those 14 recognised as functioning in 1974: Bardsey, Calf of Man, Cape Clear, Copeland, Dungeness, Fair Isle, Gibraltar Point,

Holme, Isle of May, Portland, Sandwich, Skokholm, Spurn and Walney. There are 230 pages devoted to this, and there is a chapter for each, written by an author familiar with the particular observatory.

The book starts off with a clear 'setting the scene' by Robert Spencer, which puts into perspective the history of the bird observatories and their work. He ascribes the current run-down of observatories to two factors. First, the advent of mist-nets (and perhaps cannon-nets) has made the ringer more mobile and less dependent on the huge, expensive Heligoland traps of the observatory. Second, radar studies showed that bird migration as seen at the observatories was only a small part, often only a very small part, of the migration that went on overhead; worse, the observatories' observations and theories did not tally with what was observed on radar.

While these factors have radically altered the observatory, the rest of the book makes clear that they have not killed it; the aficionados remain. The chapters, which describe their activities, each have a similar layout, with area map, the history of the observatory, seasonal activities and major specialities; there are often brief tables, totals or analyses of aspects of their work and usually also a short section on the flora and other fauna.

Though it is not easy to suggest another layout, this format makes for rather heavy reading, not always helped by frequent references to obscure local place names. The migration work in particular is very similar at most observatories, and 14 blow-by-blow accounts of the annual round do not make for excitement. For example, at least five chapters and the introduction refer to the sudden decrease in Whitethroats in the late 1960's.

In addition to the sections already mentioned, there are a number of monochrome plates—not of very good quality—and a long list giving, for each observatory, the status of the 393 species recorded at the observatories. The book is well produced, with very few typographical errors, and there is an adequate index of the species mentioned, except that those in the introduction do not seem to have been included.

Each observatory has certain special features and, though these are discussed, more could, I think, have been made of them. Nevertheless, the book will provide a valuable guide and a useful source of information to those for whom the observatories are a way of life.

C. M. PERRINS

Letters

Ravens breeding on city buildings The note by R. A. Hume on the successful breeding of Ravens *Corvus corax* on Swansea Guildhall (*Brit. Birds*, 68: 515-516), and further records from Oxfordshire and Devon by Dr Bruce Campbell and G. E. S. Turner (*Brit. Birds*, 69: 229-230), prompt me to quote from George Bolan (1912, *Birds of Northumberland and the Eastern Borders*). Bolan stated that 'about a hundred years ago the Raven was numerous and, as mentioned by Hancock, bred regularly, towards the end of the eighteenth century on the spire of St Nicholas' Church (now the Cathedral) in Newcastle'. The church could, perhaps, lay as much claim to being an occupied building as a guildhall.

It is perhaps worthy of note that the Raven is no longer a breeding species in Northumberland. A steady decline in recent years has culminated in a total lack of breeding pairs in 1975 and 1976, despite the careful checking of 30 known former nest sites.

E. R. MEEK

7 Shaftoe Way, Dinnington, Newcastle-upon-Tyne, Tyne & Wear

Cap Gris Nez and the Pas de Calais, France From 1965 to 1969 records from Cap Gris Nez were collected and published by the Cap Gris Nez Bird Observatory. These records were mainly those of English visitors. During that period, and increasingly so since, the Cap has become a focal point not only for the birds, but also for birdwatchers, and in the autumn scores and sometimes hundreds of observers congregate at the Cap. These include many visitors from the Netherlands and Belgium, as well as from France and England.

In view of the large number of observations that, for the most part, are not collected in any systematic way, it has been agreed by the undersigned to attempt to collect records from as many visitors as possible. The arrangements will be as follows:

1. T. Milbled will act as recorder for the area, and all records should be sent to him either at the address shown below or, if more convenient, to P. S. Redman, Redwings, Crowhurst, Battle, Sussex, England.
2. Standard recording forms will be available, free of charge, from either Milbled or Redman upon request.
3. Records are sought not only for Cap Gris Nez but also for the surrounding regions of the Department of Pas de Calais. Breeding records, especially of the following species, will be particularly welcomed: all raptors, Stone Curlew *Burhinus oedipnemos*, Hoopoe *Upupa epops*, Wryneck *Jynx torquilla*, Redpoll *Acanthis flammea*, Fan-tailed Warbler *Cisticola juncidis*, and shrikes *Lanius spp.* If

sufficient support is forthcoming it is hoped to publish periodic reports in French and English, beginning with the year 1976.

The county societies and bird observatories on the Kent and Sussex coasts of England have already been advised of the contents of this letter, and we hope from time to time to be able to co-operate in combined studies with them or any other research project relating to the area. We look forward to hearing from any observer who has visited, or is proposing to visit, Cap Gris Nez and the Pas de Calais area.

T. MILBLED, A. GOULLIART, P. J. OLIVER, P. S. REDMAN and
R. TONNEL

105 rue St Gabriel, 5900 Lille, France

Request for information

Old World bunting research As there is reason to believe that the Corn Bunting *Emberiza calandra* was evolved in arid grasslands from an ancestor possessing a distinctive male breeding plumage in common with the majority of *Emberiza* species, it is thought that any abnormal colour on head, back or underparts might provide a clue to the ancestral colour of those parts. Therefore anyone who has a sight or skin record of abnormally coloured male Corn Buntings in the breeding season is kindly requested to send full details, including date and locality, together with a sketch if possible, to **D. T. Lees-Smith, 27 Duchy Avenue, Harrogate, North Yorkshire HG2 0NB**

News and comment *Peter Conder*

Threatened birds of prey How often that headline has hit us. It is as true today as in the worst days of the organo-chlorine pesticides or game-preserving, but this year the cause is different. I gather from Peter Robinson, the Royal Society for the Protection of Birds's Investigations Officer, that at the time of writing at least 24 nests of Peregrines in England and Scotland have been raided for their eggs or young, chiefly the latter. It is possible that the final figure may be double. Furthermore, the eggs of a pair of Goshawks were taken just before hatching from a nest which had been previously marked by some unknown person. One of the unprotected Osprey nests was robbed of its eggs. Three young Golden Eagles, six to eight weeks old, had also been taken from their eyrie but recovered by Roy Dennis, the RSPB's Highland Officer, and the police are considering prosecuting. They are also considering charges against twelve other people involved in three other incidents. This is all that I know—so far.

1976 has, therefore, seen a horrifying rise in the number of thefts of eggs or young of birds of prey—partly by egg-collectors but more probably by those wanting

young falcons, either for their own purposes or because the price now being offered by falconers in Germany and the Arabian countries is so much higher than the ludicrously small fines that can be imposed under the Protection of Birds Act (said to be around £500 in contrast to the £25 maximum fine). Another reason for the theft of these birds may possibly be the enthusiasm to breed Peregrines in captivity and the inability of potential breeders to get their birds legitimately. Assuming that each Peregrine eyrie averaged a successful fledging of $2\frac{1}{2}$ birds per nest, then this year we have lost at least 60 eyasses. If this is going to continue in following years then we stand to see a worse situation than we had in bad pesticide years.

For security reasons the RSPB is not saying what steps they are taking next year but if birdwatchers were to report the presence of Peregrines in captivity to the RSPB they would be able to ascertain which were held legitimately. It would be prudent and indeed helpful if those who hold Peregrines legitimately were to keep their licences handy even though this is not mandatory.

Egg-collecting Reading in a bird club bulletin the other day that a club did not find Red-backed Shrikes in the habitats and localities where they had expected to reminded me that I had heard a week or two earlier that a certain egg-collector was specialising in Red-backed Shrikes and that he was paying people to collect for him in the Brecks and the New Forest. A little later I met a member of the Jourdain Society who told me that egg-collectors were concentrating on another area in south-western England in a way that worried him immensely. Both pieces of information came to me directly or indirectly from members of the Jourdain Society who were very worried about new trends in egg-collecting. Some bulletin editors might well start thinking about security for their records of the commoner rare birds as well as the real rarities. I wonder how all those who have been surveying the fortunes of the Red-backed Shrike have taken into account the efforts of egg-collectors, to whom the shrike, like the Hobby, has always been a producer of desirable eggs. If what I heard had any truth in it, then shrikes have suffered at least as badly as Peregrines this year.

Protection of Birds Act fines and the Home Office Following the theft of Osprey's eggs from an unprotected eyrie in Scotland, the RSPB asked the Government for a review of fines for stealing eggs, which, it says, are ludicrously inadequate. An attempt by Lord Chelwood to introduce a very short bill into the House of Lords was first met with sympathy by the Home Office, but this was later withdrawn and an official said they were considering their own bill. If this statement has more substance than piety, then we are in for a very long wait: to achieve the Protection of Birds Act 1967, the first delegation went to the Home Office in 1956.

Importation of birds On the same day, June 17th 1976, that Air India were fined £10,800 with £179 costs for 36 summonses issued by the Greater London Council in relation to the deaths of 2,031 birds on a flight from Calcutta at the end of last year (*Brit. Birds*, 69:111), 1,900 birds died in a British Airways plane flying the same route. Apparently many of these birds, mainly parakeets, tiger finches and mynahs, were en route for Düsseldorf. British Airways have sent two vets to Heathrow to carry out an inquiry. It is pleasing to note that Air India have decided that, as a matter of policy, they will not be carrying birds in future. Perhaps the Greater London Council can help British Airways to reach a similar decision, although the same decision reached now would be much more gratifying and more in line with world thinking on the indiscriminate importation of animals. Tim Inskipp, working for the RSPB, has completed a survey inquiry into the

conditions of birds arriving at London (Heathrow) airport and the effectiveness of the new International Air Transport Association regulations. His report is due to be published in the autumn.

Ouse Washes There are strong rumours that the Central Water Planning Authority has its eyes on the Ouse Washes and proposes to build various dams and to recirculate the water in the various drains dug by Cornelius Vermuyden in a way that would effectively dry out the Washes. At this stage it is only a rumour, but since Britain has just ratified the Ramsar Convention and the Ouse Washes are a Ramsar Convention site (*Brit. Birds*, 69:110), and since this is European Wetlands Year to which all European governments have pledged support, we can surely expect some Government departments to say no to the CWPA? In spite of a big buying programme by the Cambridgeshire and Isle of Ely Naturalists' Trust, the Fenland Wildfowling Club, the RSPB and the Wildfowl Trust, they still do not own sufficiently large chunks to control the area. Whatever the Nature Conservancy Council decides to do, the voluntary bodies may have another big fight on their hands.

Going for a song? An official at the Iranian Embassy recently telephoned the RSPB asking where she could find 100 English Nightingales for the Empress. Obviously to be kept in a Persian Garden . . .

Birds of Turkey The 1970-75 Bird Report of the Ornithological Society of Turkey has just appeared. The editors of it apologise for the delay in publication and promise better things later, including an atlas of Turkish birds. Perhaps the reader has scored by the delay, however, because what we are given is a systematic list and a check list of the birds of Turkey taking up some 260 pages of the 319-page report. After an introduction, the check list gives a short summary of the general status of each species followed by the four-year report on records within various geographical regions. The list is followed by additions and corrections to earlier reports, recent recoveries and, finally, a history of ornithology in Turkey by Hans Kumerloeve. What we have is a pretty up-to-date status report on the birds of Turkey which those interested in European birds, or those proposing to visit Turkey, should not fail to obtain from the Ornithological Society of Turkey, c/o The Lodge, Sandy, Bedfordshire, price £3 post free.

Nightingales for Cadogan Square? Cadogan Square and Cadogan Place, containing between them some nine acres of gardens in the heart of London's West End, are to be made more attractive to wild birds. The owners, Cadogan Estates Ltd, are discussing plans with the RSPB for planting suitable trees and shrubs which will provide food and cover for many different species. Local residents who are RSPB members will help with nest-boxes and census work. The announcement follows two similar developments, one covering 40 acres at the famous Hurlingham Club on the banks of the Thames at Putney and the other in the 50-acre Brompton Cemetery. The initiative for all three comes from Mr Tom Slack, a retired company director, who is a member of the RSPB Council and who is seeking to include many similar areas in the scheme.

Will Cadogan Square's Nightingales make this London's Persian Garden?

Opinions expressed in this feature are not necessarily those of the editors of British Birds

April reports *D. A. Christie*

These are largely unchecked reports, not authenticated records

On 18th a **White-billed Diver** *Gavia adamsii* was seen at Loch Dinart, Skye and Lochalsh (Highland). In Kent a **Sooty Shearwater** *Puffinus griseus* was noted at Dungeness on 8th and a **Cory's** *Calonectris diomedea* flew north at Sandwich Bay on 30th. Two **Purple Herons** *Ardea purpurea* arrived in the west country, the first in the Radipole Lake-Lodmoor area of Dorset on 12th (staying until 29th) and the other at Slapton Ley (Devon) on 25th. In the same part of Britain a **Little Bittern** *Ixobrychus minutus* appeared on Lundy (Devon) on 2nd and two turned up at Swan Pool, Falmouth (Cornwall), on 28th. **White Storks** *Ciconia ciconia* were found at Leighton Moss (Lancashire) on 10th, at Steeple (Dorset) on 22nd, and on Tresco (Scilly) on an unspecified date. The only **Spoonbill** *Platalea leucorodia* brought to our notice was one coming in off the sea at Walberswick (Suffolk), though again the date is not mentioned. A male **Ring-necked Duck** *Aythya collaris* was present at Bosherton Ponds (Dyfed) at least during the first two days of the month.

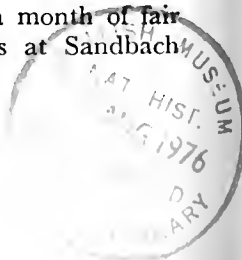
A **Red Kite** *Milvus milvus* was reported in the Snape-Sutton area of Suffolk from late March until 7th April, and a **Goshawk** *Accipiter gentilis* was seen at Tobermory on the Isle of Mull (Strathclyde) on 8th. **Ospreys** *Pandion haliaetus* seemed rather scarce, with singles in Northamptonshire at Sywell and Hollowell Reservoir on 3rd and at Bywell Reservoir on 21st; at Blithfield Reservoir (Staffordshire) on 19th; at Grafham Water (Huntingdonshire) on 22nd; and in Kent at Fordwich/Stodmarsh on 24th and at Sevenoaks on 29th. The only rare raptor reported was a **Gyrfalcon** *Falco rusticolus* at Fair Isle (Shetland) on 1st.

Cranes *Grus grus* were noted at four places: Bentley, Doncaster (South Yorkshire), on 14th and 15th, the Insh marshes (Highland) on 15th, Newburgh (Grampian) on 17th, and Tynninghame (Lothian) on 18th. Another **Killdeer** *Charadrius vociferus* was found, this time on Samson (Scilly) early in the month, and a **Stilt Sandpiper** *Micropalama himantopus* was reported at Chew Valley Lake (Avon) on 20th. The **Lesser Yellowlegs** *Tringa flavipes* finally left the Teign estuary (Devon) on 7th, but the same or another was discovered in the same county on the Exe estuary from 20th to 24th.

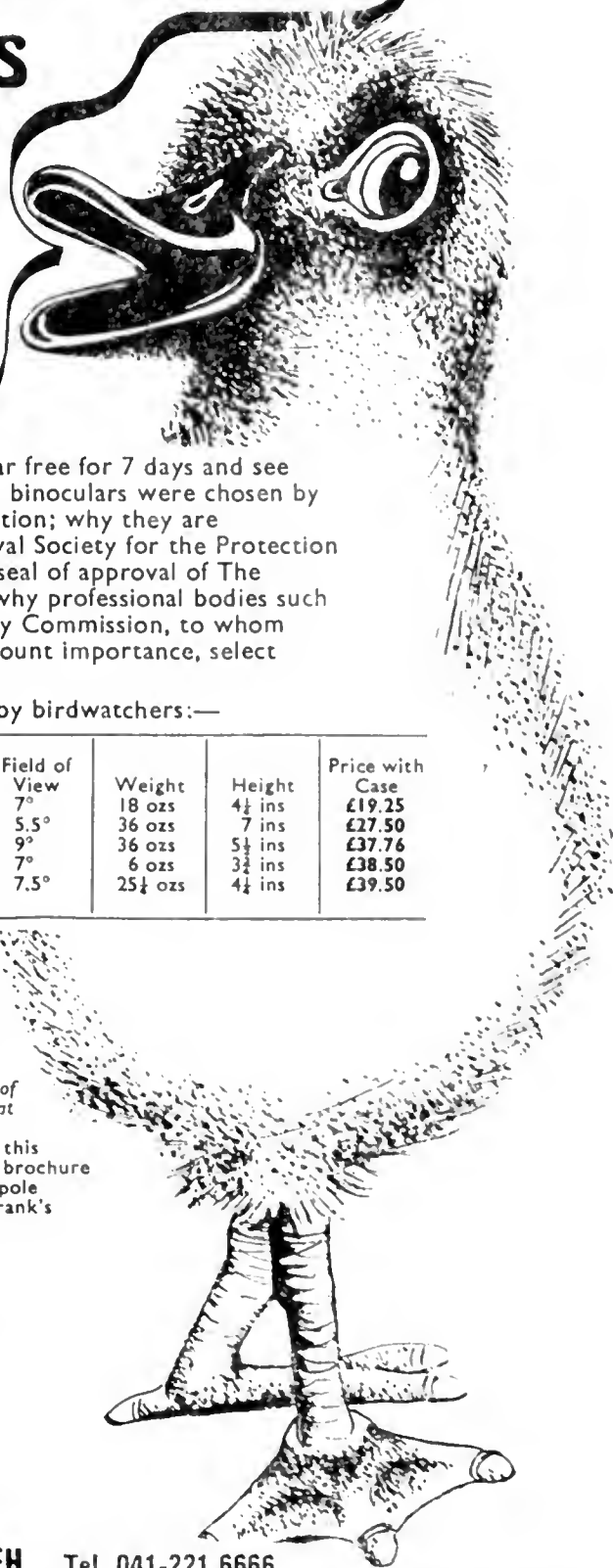
Another second-year **Ring-billed Gull** *Larus delawarensis* appeared at Blackpill (West Glamorgan) on 12th, staying for three days, and an immature of the same species was reported at Radipole Lake on 29th. A **Sabine's Gull** *L. sabini* was seen at Dungeness on 19th, while earlier in the month an adult **Ross's Gull** *Rhodostethia rosea* in winter plumage was present at South Shields (Tyne & Wear) from 9th to 11th. A **Gull-billed Tern** *Gelochelidon nilotica* was at Lodmoor on 27th.

A **Scops Owl** *Otus scops* recorded on St Mary's (Scilly) during the month eluded most observers. **Hoopoes** *Upupa epops* were reported from Dyfed, Wiltshire, Somerset, Dorset (three), Hampshire and Norfolk (two), though it is likely that there were others which have not been brought to our notice. **Wrynecks** *Jynx torquilla* were recorded in Somerset, Dorset and Kent (three).

From the Trent Valley came an interesting report of a large warbler with bright yellow underparts and brown upperparts, seen on 13th, which was considered to be either an **Icterine** *Hippolais icterina* or **Melodious Warbler** *H. polyglotta*. A **Bonelli's Warbler** *Phylloscopus bonelli* was trapped on Lundy on 9th, and a **Red-throated Pipit** *Anthus cervinus* was seen there on 20th. On 10th a **Serin** *Serinus serinus* arrived at Dungeness and, to complete a month of fair variety, an adult female **Little Bunting** *Emberiza pusilla* was at Sandbach (Cheshire) from 11th April until 1st May.



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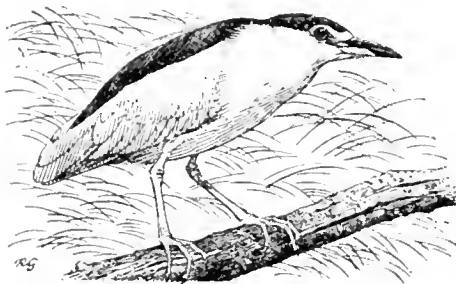
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Report on rare birds in Great Britain in 1975 (with additions for nine previous years)

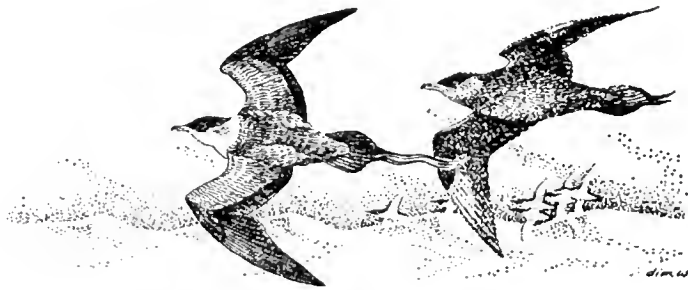
J. N. Dymond and the Rarities Committee

Plates 33-35

This is the eighteenth annual report of the Rarities Committee. The composition of the committee for 1975 was D. I. M. Wallace (chairman), J. N. Dymond (honorary secretary), D. G. Bell, A. R. M. Blake, R. H. Dennis, P. J. Grant, R. J. Johns, Dr R. J. Raines, R. A. Richardson, Dr J. T. R. Sharrock and G. A. Williams. D. I. M. Wallace continued as chairman in a non-voting and advisory capacity for a second year. As previously announced (*Brit. Birds*, 68: 306), the two longest-serving members, D. G. Bell and A. R. M. Blake, retired in April 1976, and their places have been filled by B. Little and J. R. Mather. In addition, R. A. Richardson has retired and, at its annual meeting in London on 28th February 1976, the committee decided to co-opt immediately D. J. Holman, thus maintaining the important link with East Anglia; he will stand for formal election early in 1977.

F. R. Smith retired as honorary secretary at the end of May 1975; he served on the committee for twelve years, almost ten of them as secretary, and we take this opportunity of expressing our gratitude to him for his long and most efficient service and to wish him well in his 'retirement'. D. G. Bell, who devised the Unusual Record Form which is supplied free by the committee and is used extensively by observers, served on the committee for 14 years; A. R. M. Blake for 13 years; and R. A. Richardson for seven: to each of them we extend our gratitude for their most substantial contributions.

The committee has reconsidered its list of subject species, last published in 1973 (*Brit. Birds*, 67: 347-348), and, in response to both internal and widespread external requests, has decided to add the Long-tailed Skua *Stercorarius longicaudus* to the list and to reinstate the Richard's Pipit *Anthus novaeseelandiae*. The former remains a distinctly uncommon seabird and its identification is not as easy as many observers believe; happily, J. R. Mather is currently preparing a paper on skua identification, which will include treatment of the closely similar immature plumages. The return of the pipit is an acknowledgement by the committee that its neglect since 1970 of this Asiatic passerine was an error of judgment; the large irruptive autumn arrivals of the late 1960's have ceased and clearly it is sensible to resume the monitoring of its status on a national basis.



Long-tailed Skua *Stercorarius longicaudus* (see announcement, above) and Arctic Skua *S. parasiticus*

The year 1975 was phenomenal for rare birds in Britain and the number of records submitted (about 840 of 136 species) was very considerably more than in any year since the inception of the committee in 1958. The acceptance rate, at about 81%, was consistent with that of recent years. Many observers submit their rarity records to county recorders for forwarding to the committee, while others send records directly to the committee. There is no hard-and-fast procedure, but observers submitting records to the committee are asked to send a copy to the relevant county recorder. Furthermore, whenever possible, observers are urged to send in their records within a reasonable time of the event, rather than after many months or at the end of the year; this report has been delayed by late submissions.

The year began well with two Surf Scoters *Melanitta perspicillata* and a King Eider *Somateria spectabilis* (in the same Scottish sea loch) and a Little Crane *Porzana parva*, but, apart from a Ross's Gull *Rhodostethia rosea*, a Steppe Buzzard *Buteo buteo vulpinus* and an American Robin *Turdus migratorius*, the later part of the winter

held few surprises. In spring, as in 1974, non-passerine rarities were not obvious, and there was no large influx of southern herons, although several Black Kites *Milvus migrans* and Cranes *Grus grus* appeared simultaneously in mid-May. Once again, Terek Sandpipers *Xenus cinereus* and a Broad-billed Sandpiper *Limicola falcinellus* came on cue, and another Ross's Gull appeared. The variety of rare passerines was much more striking, with Black-eared Wheatears *Oenanthe hispanica* and no less than six Subalpine Warblers *Sylvia cantillans* overshooting from the south, and three singing Greenish Warblers *Phylloscopus trochiloides* (on two June days), a Collared Flycatcher *Ficedula albicollis* on Out Skerries (clearly, isles to rival Fair Isle), a Pechora Pipit *Anthus gustavi* (the first ever in spring), six Red-throated Pipits *A. cervinus* and a total of ten Rustic *Emberiza rustica* and Little Buntings *E. pusilla* extending their migration from the south-east. Other spring vagrants of extreme quality included two Pallas's Sandgrouse *Syrhaptes paradoxus*, a Pine Grosbeak *Pinicola enucleator*, a Pine Bunting *Emberiza leucocephala*, two Slate-coloured Juncos *Junco hyemalis* and Britain's first Hermit Thrush *Hylocichla guttata*. In retrospect, the spring of 1975 foretold the riches of the autumn to come, but no one guessed so at the time.

The summer of 1975 was full of excitements too. Its chief prize was Britain's first White-tailed Plover *Vanellus leucurus*, but there was also a striking influx of adult Rose-coloured Starlings *Sturnus roseus*.

The early events of the autumn were unremarkable, but from late August onwards an almost continuous flood of rarities came from both west and east. Nearctic waders were not in total exceptionally common, but, in a clear extension of a large flight across America, no fewer than 62 Buff-breasted Sandpipers *Tryngites subruficollis* were found, scattered all over Britain and Ireland. The influx of early September broke all records. Two Greater Yellowlegs *Tringa melanoleuca* were welcome in view of their usual rarity and Lesser Golden Plovers *Pluvialis dominica* (of both American and Asiatic races) were in record numbers. At least 45 Aquatic Warblers *Acrocephalus paludicola* were noted at their regular off-passage marshes and some new localities, but Scarlet Rosefinches *Carpodacus erythrinus* proved to be rather fewer than in 1974. As in August, Continental drifts were not obvious, but American landbirds began to cross the Atlantic. Fair Isle produced two Tennessee Warblers *Vermivora peregrina*, again new to Britain, and to the south-west, out of a savage gale in the last week of September, came a small collection headed by a Yellow-bellied Sapsucker *Sphyrapicus varius*, another first for Britain, and a splendid Black-and-White Warbler *Mniotilta varia*, the second ever and the first for 40 years. After a Scarlet Tanager *Piranga olivacea*, even a Blackpoll Warbler

Dendroica striata and two Bobolinks *Dolichonyx oryzivorus* did not complete the list. As the Americans moved away, the true measure of the waves of rare Palearctic passerines became recognised. They seemed to be everywhere, and October 1975 was the most magical month in the recorded history of rare birds in Britain. Even hallowed memories of October 1968 paled as an astonishing variety of birds appeared from Fair Isle round to Scilly, with the beautiful woods at Holkham in Norfolk providing the best ever mainland rarity watching. The number of rare Siberian and Asiatic passerines seen during the autumn was at least 48 (twice the 1974 total) and their proportion in the populations of other migrants was noticeably higher than usual. One in two of the Asiatic vagrants was a Pallas's Warbler *Phylloscopus proregulus* and for every one there were at least four Yellow-browed Warblers *P. inornatus*. There can have been hardly a broadleaved wood on the east coast that did not receive one of these sprites. With them came the second ever Bimaculated Lark *Melanocorypha bimaculata*, three Asiatic thrushes, a Red-flanked Bluetail *Tarsiger cyanurus*, an Ehrenberg's Redstart *Phoenicurus phoenicurus samamisicus*, a Siberian Rubythroat *Luscinia calliope* (another first for Britain and Fair Isle's chief prize), four Lanceolated Warblers *Locustella lanceolata* (all on Fair Isle, three on one day), two Desert Warblers *Sylvia nana*, three Radde's Warblers *Phylloscopus schwarzi* and two Dusky Warblers *P. fuscatus* (all five in north Norfolk), both of Britain's rarest pipits, and Norfolk's rival to the Rubythroat, a Yellow-browed Bunting *Emberiza chrysophrys* (yet another first British record), which lurked all one day next to scores of observers but was seen by only three. Chief among the supporting cast were more Rose-coloured Starlings, Rustic and Little Buntings and Arctic Redpolls *Acanthis hornemanni*. Non-passerines seemed scarcer, but there were late Purple Herons *Ardea purpurea*, two Glossy Ibises *Plegadis falcinellus*, a Red-breasted Goose *Branta ruficollis* (with Brent Geese *B. bernicla* and not, for once, White-fronted *Anser albifrons*), another Steppe Buzzard, yet another Ross's Gull, a Little Bustard *Otis tetrax* (the chief prize of St Agnes) and a Sociable Plover *Vanellus gregarius*. Other exceptional records were a Crested Lark *Galerida cristata* and a Squacco Heron *Ardeola rallioides*.

By mid-November, life became quieter, but early winter saw another Little Crake and a typically late Killdeer *Charadrius vociferus*. Not to be outdone, America dealt the last high card, a Rose-breasted Grosbeak *Pheucticus ludovicianus* on a newly erected bird-table in Essex just before Christmas. So ended 1975, the best year for rarities (and ornithological telephone calls) ever!

An analysis of the first autumn dates for the Siberian and Asiatic passerines indicates that there were either at least four waves of

arrivals or redirected passage. The first broke on about 11th October and was most obvious at Fair Isle, though there were signs as far south as Sussex. The second was obvious by the 18th and touched the east coast from the Isle of May south to Norfolk, spreading west to Scilly. The third began on the 25th and was again obvious along the English Channel, but not north of Norfolk. The fourth, clearly separate, was obvious from 10th November, but was again restricted to the east coast between Northumberland and Essex. Regional differences in the species-spectrum suggests that each wave was distinct, but some later compounding by redirected passage from the north seems likely. It is an astonishing fact that not one of these birds (apart from Yellow-browed Warblers) added the few score kilometres westward to Ireland to the thousands already completed by their British landfalls. In this respect, it is noteworthy that the Channel Islands' crop of rarities was essentially similar to that in Britain.

The occurrence patterns of the later Red-throated Pipits, Arctic Redpolls, Rustic and Little Buntings were not dissimilar to those of their far-eastern co-vagrants, which suggests that the individuals involved did not originate from the breeding populations nearest to Britain. Conversely, those of the Scarlet Rosefinch, Greenish and Arctic Warblers showed no such resemblance; their patterns had more of the erratic appearance of Scandinavian and European migrants, such as Barred Warblers *Sylvia nisoria* and Bluethroats *Luscinia svecica*. The autumn of 1975 was easy to enjoy; it is much more difficult to explain. One may sense that exceptional breeding success by Asiatic species caused an unusual degree of reversed migration and that the expanding polar circulation contributed to westward dispersal, but we lack proof that these were the major factors.

The main systematic list of accepted records is given on pages 327-359 and is followed by supplementary records for 1960 (one), 1964 (one), 1965 (two), 1967 (one), 1969 (one), 1971 (one), 1972 (five), 1973 (eight) and 1974 (48). Appendix 1 on pages 365-367 lists the 110 rejected records for 1975, followed by appendices 2-7 which set out additional rejected records for 1959, 1970, 1971, 1972, 1973 and 1974.

Comments on individual species have been prepared by D. I. M. Wallace, as have the paragraphs in this introduction relating the events of the year and analysing some of them. The comments include the accepted Irish records which are adjudicated by the Irish Records Panel. All Irish records are published annually in the *Irish Bird Report* (obtainable from K. Perry, 17 Bridge Street, Banbridge, Co. Down), and we express our gratitude to K. Preston, editor of the report and honorary secretary of the Irish Records

Panel, for agreeing to our repeating them and for providing the information in advance of publication. They are given at the beginning of each species comment as before, after the summary (in brackets) of the world breeding range.

It is our normal practice not to publish records of birds new to Britain and Ireland until they have been accepted both by us and by the Records Committee of the British Ornithologists' Union. There were so many such records in 1975, however, and they form such an integral part of the whole picture of this remarkable year, that they have been included in this report. Such instances are always noted in the comments which appear below the records; we stress that these records are not yet formally accepted additions to the British and Irish list.

Photographs of a few of the rarities of 1975 are reproduced on plates 33-35. Observers are again urged to submit black-and-white prints for possible inclusion. Copies of the list of species considered by the committee and Unusual Record Forms are available on request free of charge from the address on page 327: observers are encouraged to use these forms as often as possible.

The principles and procedure followed in considering records were explained in the 1958 report (*Brit. Birds*, 53: 155-158), and the systematic list is set out in the same way as in the 1974 report (*Brit. Birds*, 68: 306-338). The following points, some of which were outlined more fully in the 1958 report, should be borne in mind, as they show the basis on which this information has been put together. The committee will discuss any items which societies or observatories suggest are in need of further consideration.

(i) The details included for each record are (1) county; (2) locality; (3) number of birds if more than one, and age and sex if known (in the case of spring and summer records, however, the age is normally given only where the bird concerned was not in adult plumage); (4) if trapped or found dead, and where specimen is stored, if known; (5) date(s); and (6) observer(s) up to three in number, in alphabetical order. In accordance with our declared policy (see *Brit. Birds*, 68: 1-4) the new county names have been used, and observers are asked to bear this in mind when submitting records. The old county names are used for the additional records for earlier years.

(ii) In general, this report is confined to records which are regarded as certain, and 'probables' are not included. In the case of the very similar Long-billed *Limnodromus scolopaceus* and Short-billed Dowitchers *L. griseus*, however, we are continuing to publish indeterminable records, and this also applies to observations of the two pratincoles *Glareola spp* and of such difficult groups as albatrosses *Diomedea spp* and frigatebirds *Fregata spp*.

(iii) The sequence of species, vernacular names and scientific nomenclature follow the British Trust for Ornithology's guide *A Species List of British and Irish Birds* (1971). Any sight records of subspecies (including those of birds trapped and released) are normally referred to as 'showing the characters' of the race concerned.

Problems concerning escapes and introductions have again been dealt with by M. D. England, author of a review of this subject (*Brit. Birds*, 67: 177-197), and in some cases advice has also been sought from T. P. Inskipp. The Wildfowl Trust has continued to help with advice on wildfowl escape and identification problems, while Derek Goodwin has once again advised on problems involving museum research, under the arrangement made with the British Museum (Natural History).

The committee is most grateful to the many individuals and organisations whose co-operation has made the publication of this report possible. **All records should be addressed to the honorary secretary, J. N. Dymond, RSPB, The Lodge, Sandy, Bedfordshire SG19 2DL.**

Systematic list of records accepted

Black-browed Albatross *Diomedea melanophris*

Orkney: Scapa Flow, adult, 21st August (G. G. Bunting).

Shetland: Hermaness, Unst, adult, 16th March to 18th August (D. J. Frost, H. Mitchell, R. J. Tulloch *et al.*)

(Southern oceans) None off Ireland and the two records above are obviously of the same bird. The five-month stay at one place eclipses even the Bass Rock episode of 1967 (*Brit. Birds*, 61: 22-27); the dates of arrival and departure indicate the close association with the Hermaness population of Gannets *Sula bassana*.

Cory's Shearwater *Calonectris diomedea*

Dorset: Portland Bill, 25th May (P. Griggs, R. Howard); 7th June (P. D. Goriup, Z. J. Karpowicz *et al.*); 8th June (A. J. L. Smith); 21st June (G. Walbridge *et al.*); six, 28th June (F. R. Clifton).

Irish Sea: off Dyfed, 11, 4th September (G. Evans, P. J. Marsh).

Mid-Glamorgan: Sker Point, 27th July (D. P. Maddocks, J. D. Wells).

Strathclyde: Machrihanish, Argyll, 14th August (E. J. Maguire).

(East Atlantic and Mediterranean) Two Irish records, both of single birds off Cape Clear Island, Co. Cork, on 15th July and 6th August, are fewer than usual.

Little Shearwater *Puffinus assimilis*

Cornwall: off Land's End, 11th September (M. I. Harvey).

Lancashire: Cleveleys, Fylde, immature ♀, found shot dead, 27th March (E. W. Jackson, M. Jones, D. F. Wadsworth); specimen in Merseyside County Museum, Liverpool.

(Atlantic south from Madeira and Canaries, and southern

oceans) One Irish record, a single bird off Cape Clear Island, Co. Cork, on 9th September, takes the grand total to 45. The Lancashire record is the earliest ever in spring.

Purple Heron *Ardea purpurea*

Avon: Chew Valley Lake, 28th September (D. Buffery, P. Denning).

Cleveland: Moorsholm, Guisborough, immature, found dying, 1st August (M. A. Blick, J. B. Dunnett, D. Smith).

Cornwall: between Isles of Scilly and Land's End, immature, 31st October (D. S. Flumm, Dr C. A. Walker).

Derbyshire: Sawley, adult, 27th August (R. A. Frost).

East Sussex: Pett Level, immature, 26th April (P. F. Bonham, R. R. Greenhalf, N. Pinder). Weir Wood Reservoir, adult, 8th July (C. E. Hope, C. R. Janman).

Essex: Rainham, 31st May (P. Griggs, N. Parr). Hanningfield Reservoir. immature, 15th June (S. H. Hudgell).

Gwynedd: Llyn Bodgylched, Beaumaris, immature, 11th May (N. H. Brown, P. and R. A. Schofield).

Humberside: Flamborough Head, 10th October (P. A. Lassey).

Kent: Dungeness, 19th April (M. A. Hollingworth, A. Howard, N. Riddiford *et al.*).

Lincolnshire: Huttoft, 4th to 6th June (K. Atkin, M. Mellor, R. B. Wilkinson).

Norfolk: Hickling Broad, immature, 26th April (H. Mitchell *et al.*). Rockland Broad, 22nd June (R. C. McIntyre). Halvergate, 17th to 30th August (D. Talks *et al.*).

Northamptonshire: Thrapston gravel pit, immature, found dead, 24th August (J. W. W. Metcalfe).

Scilly: St Mary's, 23rd April to 22nd May (J. R. H. Clements, D. B. Hunt, R. E. Turley *et al.*).

Suffolk: Walberswick, 10th May (G. J. Jobson).

West Glamorgan: Oxwich, immature, 7th to 8th May, 29th May to 4th June, 26th to 28th June, one individual (H. E. Grenfell, A. Pym, K. E. Vinicombe *et al.*); adult, 6th July (H. E. Grenfell, Miss J. I. Peachey).

(South-central Eurasia, north to Netherlands, and Africa) The total of 20 is above the average and it is also unusual for six to be in autumn. The total since 1958 is now about 185.

Little Egret *Egretta garzetta*

Essex: Mundon, Maldon, 16th to 18th May (H. G. Binder, D. Thompson). Old Hall Marsh, 8th June (I. Pearson).

Gloucestershire: Witcombe Reservoir, 11th May (L. Foat, Mrs E. Sutton).

Grampian: River North Esk, Kincardine, 4th June (P. J. Dolton).

South Yorkshire: Potteric Carr, Doncaster, 21st August (M. G. Ibbotson, N. P. Whitehouse).

(South Eurasia, Africa and Australia) Also one in Cork Harbour, Co. Cork, from 31st October into December. Six is a poor showing and the recent series of widespread spring influxes is broken. The total since 1958 is now 155.

Squacco Heron *Ardeola ralloides*

Oxfordshire: Stanton Harcourt, 16th to 22nd August (Dr B. Campbell, T. Godfrey, T. Young *et al.*).

(South Europe, south-west Asia, and Africa) Only the tenth since 1958.

Cattle Egret *Bubulcus ibis*

Gloucestershire: Slimbridge, 2nd to 7th March (E. E. Jackson, W. Shakespear, M. Smart *et al.*), possibly the same bird as in August 1974 (see page 362).

Norfolk: Hickling Broad, 23rd to 26th April (P. R. Allard, G. E. Dunmore *et al.*).

(Almost cosmopolitan in tropics, nearest breeding colonies in south France and Portugal) This remains the rarest Palearctic heron to visit Britain, but its occurrences inevitably attract the doubts that attach to every species widely held captive.

Night Heron *Nycticorax nycticorax*

Devon: Lundy, 15th April (I. G. Black, A. M. Taylor).

East Sussex: Rye Harbour, adult, 2nd to 4th September (G. H. and Mrs K. A. Shiner, S. J. Woolner).

Grampian: Newburgh, Gordon, 3rd to 8th May (M. A. Macdonald).

(South Eurasia, Africa and the Americas) Another poor showing, for the third year running. The grand total now approaches 240.

Little Bittern *Ixobrychus minutus*

Cornwall: Goonhilly Downs, ♂, 21st June (W. R. Hirst, F. J. Roberts).

Dorset: Lodmoor, ♂, 18th May (M. Whitelock *et al.*).

Kent: Stodmarsh, ♂, 25th to 27th May (S. J. Moss, D. R. Colaço Osorio).

(West Eurasia, Africa and Australia) There was none in 1974, but these three are not unusual in the long-term context of regular spring influxes.

White Stork *Ciconia ciconia*

Berkshire: Walbury Hill, 16th March (Z. J. Karpowicz *et al.*).

Dyfed: Gwaun Valley, 26th May (R. J. Fuller, R. E. Youngman). Castle Lloyd. Pendine, found injured, 24th September (M. Cullen); this bird had been ringed as a nestling on 17th July 1975 at Oldeborg, Aurich, Neidersachsen, West Germany.

East Sussex: near Southease, Lewes, 26th May to 1st June (J. M. Daykin, D. C. Lang *et al.*).

Essex: Leigh-on-Sea, 12th March (A. R. Mead).

Grampian: Elgin, 7th to 10th May (C. A. Gervaise *et al.*). Fintray, 11th to 20th June (per A. G. Knox).

Highland: Lairg, Sutherland, 21st to 23rd April (A. Lockart *et al.*). Nigg Bay, Ross and Cromarty, 24th April (per C. G. Headlam). Auldearn, Nairn, 27th April (J. Ellingham). Ardesier, Inverness, 28th April (Mrs Job). Insh Marshes, Badenoch and Strathspey, 3rd May (D. N. Weir *et al.*).

North Yorkshire: Aketon, Castleford, 31st May to 1st June (D. Hirst).

Shetland: Fair Isle, 25th May (G. J. Barnes).

Suffolk: Rendham/Yoxford area, the one first recorded on 22nd October 1974 (*Brit. Birds*, 68: 311) stayed until 12th April (H. E. Axell *et al.*). Bungay, 10th to 16th June (B. J. Brown, D. R. Moore).

West Sussex: Adversane and vicinity, the one first recorded in mid-September 1974 (*Brit. Birds*, 68: 311) was last seen on 16th February (F. W. Dougharty, S. W. M. Hughes, K. Neale).

(Central and south Europe, south-west Asia and north-west Africa) The Grampian and Highland records are all thought to refer to a single individual, and the dates suggest that this bird may even have reached Fair Isle. In Suffolk, the one at Bungay was possibly the bird that overwintered near Yoxford. The grand total is now about 152, of which some 80 have been since 1967, when the current trend of increased vagrancy began.

Glossy Ibis *Plegadis falcinellus*

Kent: Stodmarsh, 14th December (I. J. Andrews *et al.*).

Lincolnshire: Saltfleetby, 5th November (K. Harrison).

(Cosmopolitan, but very local, nearest breeding colonies in Balkans) Surprisingly, this is now the fourth consecutive year in which this species has appeared. We await details of a third, late autumn record.

Teal *Anas crecca*

Drakes showing the characters of the North American race *A. c. carolinensis*, colloquially known as the Green-winged Teal, were recorded as follows:

East Sussex: Cuckmere Valley, 21st to 22nd March (M. J. Rogers, P. J. Wilson).

Scilly: St Agnes, 1st to 10th May (R. W. Allen, J. R. H. Clements *et al.*). St Mary's, 14th to 22nd May (R. W. Allen, D. B. Hunt).

Shetland: Unifirth, 15th November to 28th February 1976 (P. K. Kinnear).

(North America) The two Scilly records certainly refer to the same individual. The grand total for Britain and Ireland is now about 94.

Blue-winged Teal *Anas discors*

Ross and Cromarty: Tarradale, Beaully Firth, ♂, 31st August (R. H. Dennis).

(North America) Also three in Ireland, two shot at Lough Denararagh, Co. Westmeath, and a duck shot on North Slob, Co. Wexford, all between 1st and 5th October; bringing the grand total to 53.

American Wigeon *Anas americana*

Borders: Bowden Reservoir, ♂, 25th to 28th February (Mrs M. Little, Mrs. A. Speirs).

Dumfries and Galloway: Loch Milton, ♂, 16th to 26th March (Miss M. Matheson, T. Nisbet *et al.*).

Greater London: Surrey Docks, pair, 5th September (R. E. Alderton); another ♂, 9th to 15th September (R. E. Alderton).

(North America) The grand total moves on to 81. The Surrey Docks birds are considered particularly suspect as escapes from captivity.

Surf Scoter *Melanitta perspicillata*

Fife: St Andrews, ♂, 14th to 18th December (A. J. Blackx, I. G. Cumming *et al.*).

Grampian: Murcar, ♂, 23rd September to 6th October (P. M. and Mrs J. A. Ellis *et al.*). Burghhead Bay, ♂, 26th October (N. Elkins, B. Etheridge).

Ross and Cromarty: Tarbat Ness, pair, 19th January (D. W. and Mrs. H. E. McAllister).

Silly: Tresco and area, immature, 5th to 23rd October (D. B. Hunt, K. C. Osborne, D. I. M. Wallace *et al.*) (plate 34a).

Shetland: Ronas Voe, ♂, 20th to 25th May (C. M. Adamson, D. Coutts, I. Sandison).

Sutherland: Loch Fleet, two ♂♂, 1st January to 16th March (R. H. Dennis *et al.*).

(North America) Seven records of nine birds—in winter, spring, autumn and, again, winter—set a new level of occurrence for this scoter. The grand total moves on to 112.

Steller's Eider *Polysticta stelleri*

Western Isles: South Uist, the drake first recorded in May 1972 (*Brit. Birds* 66: 338) has stayed through 1973, 1974 and 1975, and was still present in summer 1976.

King Eider *Somateria spectabilis*

Grampian: Murcar, ♀, 23rd September to 2nd October (P. M. Ellis *et al.*); ♂, 4th to 11th October (M. A. S. Beaman, C. J. Spray).

Orkney: Long Hope, South Walls, ♂, 8th February (D. Lea).

Shetland: Sullom Voe, ♂, 8th January to 13th March (D. Coutts, P. K. Kinnear, R. J. Tulloch). Toft, immature ♂, 29th April (R. J. Tulloch). Hascosay Sound, ♂, 18th December into 1976 (P. K. Kinnear, M. G. Richardson, R. J. Tulloch). Fair Isle, ♂, 3rd April (R. A. Broad, D. J. Frost, P. J. Roberts); ♂, 8th September to 2nd October (R. A. Broad, A. Clements, P. J. Roberts *et al.*); immature ♂, 4th November (R. A. Broad, I. Buckley, P. J. Roberts).

Strathclyde: Great Cumbrae, ♂, 22nd April and 19th to 20th June, and Little Cumbrae, 21st May (J. J. Boyle *et al.*).

Sutherland: Loch Fleet, ♂, 1st January to 13th April, three ♂♂, 14th to 19th April, two ♂♂ to 4th June (R. H. Dennis, P. M. Ellis *et al.*); ♂, 31st October into 1976 (R. H. Dennis).

(Circumpolar Arctic) This fine sea-duck continues to be found in Scotland and is showing a marked loyalty to certain areas there. It is difficult to judge how many individuals were involved in 1975, but it can hardly have been less than eleven. There have now been

over 50 records in Britain in the last three years, compared with the grand total up to 1972 of about 80.

Ruddy Shelduck *Tadorna ferruginea*

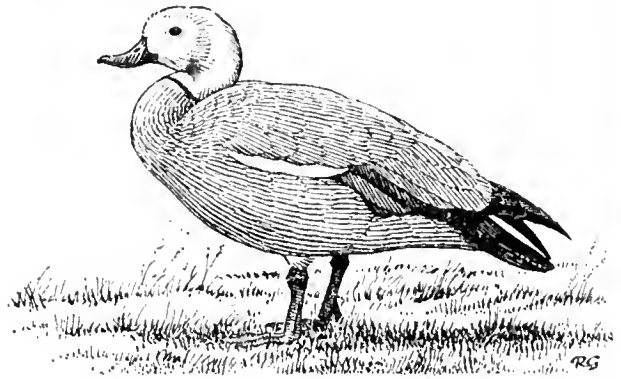
Derbyshire: Drakelow Reserve, two ♂♂, 11th to 18th May (T. Cockburn, J. R. Collinson).

Humberside: Whitton Sand, River Humber, two, 13th to 14th September (D. I. M. Wallace).

Norfolk: Cley, two, 9th to 31st August, one on 1st September (D. J. Holman, *et al.*).

(North-west Africa, south-east Europe and across Asia) This species appears to have been seen more frequently in recent years and the committee requests that all unpublished records since 1958 be submitted, so that its current status can be assessed.

Ruddy Shelduck *Tadorna
ferruginea* (see request.
above)



Lesser White-fronted Goose *Anser erythropus*

Gloucestershire: Slimbridge, immature, 28th December to 4th March 1976 (P. A. R. Hockey, J. B. O. Rossetti, G. P. Threlfall *et al.*); two adults, one 28th December to 4th March 1976 (Miss D. Fowler, K. Lane *et al.*) and a second on 29th December (R. W. Byrne).

(North-east Europe and Siberia) Although the numbers of European White-fronted Geese *A. albifrons albifrons* reaching Slimbridge are now even further reduced (in the absence of regular hard weather in north-west Europe), happily those that come are still sometimes accompanied by one or two Lesser White-fronts. The grand total is now 95.

Red-breasted Goose *Branta ruficollis*

Essex: Foulness, 12th October (A. St Joseph). Two Tree Island, 24th October to 7th November (A. R. Mead, C. J. Stratford *et al.*) (plate 33).

Hampshire: Hayling Island, 8th November to end of February 1976 (per J. H. Taverner).

(West Siberia) This bird, the first since 1969, arrived with and moved west with Brent Geese *B. bernicla*; wild birds usually associate

with the European White-fronted Geese *Anser albifrons albifrons*. The grand total is now about 26.

Buzzard *Buteo buteo*

Individuals showing the characters of the distinctive subspecies *B. b. vulpinus*, colloquially known as the Steppe Buzzard, were recorded as follows:

Cornwall: St Ives, 27th October and 2nd November (P. Pearce, V. A. Stratton).

Kent: Reculver, 1st February to 20th April (J. N. Hollyer *et al.*).

(East Europe and west Asia) The second and third records of this subspecies, which breeds east from central Fenno-Scandia. The only previous fully accepted record was in Wiltshire in September 1864.

Black Kite *Milvus migrans*

Cornwall: Porthgwarra, 17th May (D. J. Barker, L. P. Williams *et al.*).

North Yorkshire: near Kewick, 12th May (C. Bielby).

Orkney: Eday, 3rd May (R. D. Lowe).

(Most of Eurasia, Africa and Australia) Three apparently different birds in only 14 days is unprecedented. Out of a grand total of 20, 15 have been seen in the last ten years. The most obvious association of this influx is with the four spring Cranes *Grus grus*.

Gyr Falcon *Falco rusticolus*

Devon: Exminster Marshes, 6th February (R. Khan).

Grampian: Forties Field, North Sea, 200 km north-east of Aberdeen, found exhausted, 5th January, taken to Aberdeen Zoo where later died (R. Baxter, per G. Leslie and Aberdeen Zoo).

(Circumpolar Arctic) Two winter records are typical of the occurrence pattern of this magnificent raptor from 1958 to 1965, but the more recent series of spring occurrences is broken. Oil rigs evidently have some ornithological potential.

Red-footed Falcon *Falco vespertinus*

Derbyshire: Church Wilne Reservoir, immature, 6th and 9th July (T. Gibson, R. W. Key, K. J. Lyon).

Devon: Lundy, immature, 27th to 28th August (N. A. Clark, M. Rogers).

Dorset: Portland Bill, ♀, 3rd May (P. G. and Mrs C. M. Lansdown, G. L. Webber).

Dyfed: Skokholm, ♂, 27th May (M. de L. Brooke). St Ann's Head, immature ♂, 28th to 31st May (D. F. Billet, T. A. W. Davis, K. J. S. Devonald *et al.*). Skomer, ♀, 8th to 11th June (J. E. Davis *et al.*).

Grampian: Crimond, ♂, 20th June (J. Dunbar).

Lothian: Belhaven, Dunbar, ♂, 4th July (T. C. and Mrs A. Smout).

Suffolk: Minsmere, ♂, 28th September (R. V. A. Marshall, J. K. and Mrs D. J. Weston *et al.*).

(East Europe and south from Siberia) An about average showing of this eastern falcon. Three in Wales in one year is unusual. There have been about 157 in total.

Crane *Grus grus*

Cambridgeshire: Woodwalton Fen, 9th and 12th May (G. K. Mason). Wicken Fen, 11th May (N. J. Bucknall, H. J. Harvey, Dr C. J. R. Thorne *et al.*).

Dorset: Lytchett Bay, Poole Harbour, 16th August (S. Harrop).

Strathclyde: Bunessan, Mull, 9th to 12th May (H. Cook, J. Rusk).

Tyne and Wear: Monkseaton, 16th May (J. A. Ginnever).

(North and central Europe, locally south to Turkey) In Ireland, there were single birds at Lough Swilly, Co. Donegal, from 24th May to at least November and at Ballymacoda, Co. Cork, on 30th November. Seven records in one year is well above average. There was none in 1974. The total since the large autumn influx of 1963 is about 60.

Little Crake *Porzana parva*

Dorset: Lodmoor, 8th to 10th November and 8th December (D. C. Gilbert).

Nottinghamshire: Attenborough, 3rd January (N. G. Beynon, B. Wetton).

(Central and east Europe and west Asia) Two more records suggesting that this crake, both elusive and hard to identify, winters in England. The grand total moves on to nearly 90.

Little Bustard *Otis tetrax*

Scilly: St Agnes, 29th October (M. A. Hollingworth, T. P. Inskipp, Miss C. Robinson *et al.*), and St Mary's, 2nd to 3rd November (R. H. and Mrs M. E. Charlwood, D. B. Hunt).

(North-west Africa, Iberia east across south Europe, also Asia) This bird, the first since 1969 and the tenth since 1958, is the first hint in this list of the exceptional flood of rarities that lapped over Britain in the late autumn of 1975.

Sociable Plover *Vanellus gregarius*

Dorset: Langton Herring, 28th September to 10th October (M. J. Cowlard, J. R. Mullins *et al.*).

(South-east Russia and west-central Asia) The fourteenth ever; a typical date.

White-tailed Plover *Vanellus leucurus*

Warwickshire: Packington gravel pits, 12th to 18th July (A. R. Dean, J. E. Fortey, E. G. Phillips *et al.*).

(South Russia and Middle East, and west-central Asia) Still under consideration by the BOU Records Committee. The first

record here of this graceful and beautiful relation of the Lapwing *V. vanellus*. At first sight, it is an astonishing occurrence, but 1975 saw others reach several more European countries, including Austria, Italy, the Netherlands and Sweden.

Killdeer *Charadrius vociferus*

Humberside: Thorne Moors, 29th to 30th November (S. James, M. Limbert, C. Wells *et al.*).

Leicestershire: Eye Brook Reservoir, 28th September to 19th October, and Swithland Reservoir, 2nd to 16th November (K. Allsopp, R. E. Davis, J. W. Walker *et al.*) (plate 35c).

(North America, West Indies and Peru) These two take the grand total to 20, although it is conceivable that only one individual was involved.

Lesser Golden Plover *Pluvialis dominica*

Cornwall: Stithians Reservoir, 28th August to early October (R. Butts, P. D. Round); another, 2nd to 20th September (R. Andrew, E. Griffiths, V. R. Tucker *et al.*); a third individual, 26th September (J. Hawkey, V. R. Tucker). Culdrose, Helston, 19th September (E. Grace). Siblyback Reservoir, 26th September to 18th October (D. J. Barrett, S. C. Madge).

Humberside: Bempton Cliffs, 1st September (S. C. Madge).

Scilly: St Mary's, 18th to 19th September (D. B. Hunt *et al.*).

(Arctic North America and north-east Asia) The third Stithians Reservoir bird and that at Bempton were considered to be probably of the Asiatic race, *P. d. fulva*, while all the others were thought to be of the American race, *P. d. dominica*. The Culdrose bird was probably one of the Stithians individuals. Exceptionally rare before 1962, the absence of this species from the autumn roll would now seem odd indeed. Six in one season sets a new level of occurrence and the grand total moves on to 38.

Long-billed Dowitcher *Limnodromus scolopaceus*

Cornwall: Stithians Reservoir, two, 13th October, one to 16th November and the other to 25th March 1976 (Rev. J. E. Beckerlegge, E. Grace, K. Noble *et al.*) (plate 34b).

Scilly: St Mary's, 5th to 12th October (D. S. Flumm, M. J. Rogers *et al.*).

(North America) Also one at St Ouen's Pond, Jersey, from 20th to 24th September. It is noteworthy that three straggled west to Nova Scotia on 9th and 10th October.

Great Snipe *Gallinago media*

Humberside: Crabley Creek, 6th September (D. I. M. Wallace).

Inverness: near Drumadroit, 29th April (M. I. Harvey, J. Love).

Kent: Sevenoaks, 3rd to 15th September (J. Carter, Dr J. G. Harrison *et al.*).

(North-east Europe and north-west Asia) Three in one year is above average and the total since 1958 now reaches 35. A paper detailing the differences between this species and the Snipe *G. gallinago* will appear shortly in this journal.

Upland Sandpiper *Bartramia longicauda*

Dyfed: Dale Aerodrome, 1st September (R. Boden, J. W. and Mrs J. E. Donovan).

Shetland: Fair Isle, 25th September (R. A. Broad, G. J. Jobson, P. J. Roberts *et al.*).

(North America) The grand total moves on to 30, half of them since 1960. Aerodromes are a favoured habitat of autumn migrants in North America.

Solitary Sandpiper *Tringa solitaria*

Silly: Tresco, 12th September (W. E. Oddie).

(North America) The seventeenth ever.

Spotted Sandpiper *Tringa macularia*

Dyfed/Gwynedd: Ynys-hir, Dovey estuary, 9th October to 20th November (S. C. Madge *et al.*).

Highland region: pair with nest and four eggs, unsuccessful, 15th June to 3rd July (G. E. Wilson *et al.*) (*Brit. Birds*, 69: 288-292).

(North America) Only one autumn bird looks rather lonely in the recent context (though there was none at all in 1972). Even so, the breeding attempt may be seen as the product of the increasingly complex pattern of occurrence for this sandpiper since 1965.

Greater Yellowlegs *Tringa melanoleuca*

Norfolk: Breydon Water, 8th to 13th September (P. R. Allard, P. J. Grant, M. J. Seago *et al.*).

Silly: Tresco, 24th August to 3rd September (found dead on 6th) (D. B. Hunt C. McCullough *et al.*).

(North America) It is surprising that two of the five yellowlegs in 1975 should be of this species, usually much the rarer of the two. The grand total moves on to 21.

Lesser Yellowlegs *Tringa flavipes*

Caithness: Wick, 20th September (S. Laybourne).

Devon: Teign estuary, 10th November to 6th April 1976 (R. A. Harding, R. Khan, D. M. Norman *et al.*).

Gwynedd: Pwllheli, 9th to 10th September (A. H. Morley, D. Thomas, M. C. Wainwright).

(North America) In Ireland, there were single birds at Akeragh Lough, Co. Kerry, on 5th April and 10th and 14th August, and at

Ballycotton, Co. Cork, on 2nd September. Another above average showing; the grand total is now 120.

Terek Sandpiper *Xenus cinereus*

Norfolk: Breydon Water, 1st June (P. R. Allard, T. E. Boulton, G. E. Dunmore *et al.*). Cley, 2nd to 4th July (P. J. Milford *et al.*).

Shetland: Whalsay, 20th to 21st June (W. Arthur, Dr B. Marshall, J. H. Simpson *et al.*).

(North-east Europe and Siberia) There have now been spring records of this very individual sandpiper in four consecutive years. Out of a grand total of 14 records, 11 have been since 1969. The Scottish record is the first for that country.

Least Sandpiper *Calidris minutilla*

Berkshire: Brimpton gravel pits, 11th October (N. Cleere).

(North America) The nineteenth ever.

Baird's Sandpiper *Calidris bairdii*

Lothian: Aberlady Bay, 11th to 12th August (M. W. Fraser, R. G. Nisbet, G. L. Sandeman).

West Glamorgan: Whiteford Point, 31st August (M. Chown, P. G. Lansdown *et al.*).

(North America) Also one at Lough Derravaragh, Co. Westmeath, on 30th July. A poor showing, with none in England for the first time since 1969, but the grand total is now at least 54.

White-rumped Sandpiper *Calidris fuscicollis*

Cleveland: Reclamation Pond, Teesmouth, 16th August (T. Francis, G. Icceton, R. Little *et al.*).

Dyfed: near Kidwelly, 25th to 27th September (H. E. Grenfell, I. K. Morgan, E. J. Smith).

Humberside: Welton Waters, 13th to 14th July (H. O. Bunce, D. I. M. Wallace *et al.*).

(North America) Also one in Cork Harbour, Co. Cork, on 17th September. The grand total is now 129.

Sharp-tailed Sandpiper *Calidris acuminata*

Berkshire: Manor Farm sewage farm, Reading, 17th to 22nd August (Z. and Z. J. Karpowicz *et al.*).

(North-east Siberia) The thirteenth ever of a once very rare bird, now appearing almost annually. Sweden's first was seen in July 1975.

Buff-breasted Sandpiper *Tryngites subruficollis*

Avon: Chew Valley Lake, two, 1st September, one to 12th (T. R. Cleeves, A. J. Merritt, T. Nichols *et al.*); another, 20th to 22nd September (D. Buffery, A. J. Merritt *et al.*); a third individual, 26th September to 1st October (D. Buffery, J. B. O. Rossetti, K. E. Vinicombe).

Cambridgeshire: Grafham Water, 2nd to 30th September, two from 17th to 26th September (J. N. Dymond, R. I. Thorpe, C. E. Wells *et al.*).

Cheshire: Frodsham, 20th to 22nd August (E. J. and R. J. Abraham, D. Woodward *et al.*).

Cumbria: Walney Island, 5th October (J. Sheldon).

Devon: Lundy, 8th September (C. C. Baillie, N. A. Clark, M. Rogers *et al.*); another, 29th September to 5th October (N. A. Clark, M. Rogers).

Dorset: Ferrybridge, 1st September (R. Hudson, C. Powell, I. S. Robertson *et al.*).

Dyfed: Towyn Point, Llanelli, 26th to 29th April (H. E. Grenfell, G. Harper, E. J. Smith *et al.*).

Essex: Hanningfield Reservoir, 1st to 11th September (G. T. Corley Smith, G. Smith, J. T. Smith *et al.*). Abberton Reservoir, 4th to 5th September (R. V. A. Marshall, R. M. Wright).

Fife: Tentsmuir, 7th September (A. Brown, R. H. and Mrs M. W. Hogg).

Hampshire: Pennington Marshes, 31st August (R. Dunn, E. J. Wiseman *et al.*).

Inverness: Longman, 3rd to 4th September (R. H. Dennis, P. M. Ellis *et al.*).

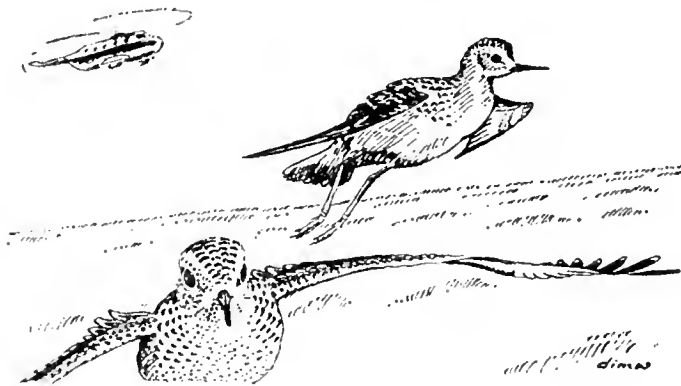
Lincolnshire: River Witham, Boston, 13th September (Mr and Mrs D. G. Atkin, K. Atkin).

Lothian: Aberlady Bay, 3rd September (M. W. Fraser, A. Mathieson). Musselburgh, two, 4th to 7th September (A. Brown, G. L. Sandeman, Dr L. L. J. Vick); another, 16th to 17th September (G. L. Sandeman, Dr L. L. J. Vick).

Norfolk: Cley, 15th to 20th September (F. R. Cannings *et al.*).

Nottinghamshire: Netherfield, 13th to 18th September (G. Andrews, A. Dobbs, J. A. Hopper *et al.*).

Scilly: St Mary's, 7th to 8th September, six on 9th, seven on 10th to 11th, eight on 12 to 14th, seven on 15th (E. Griffiths, W. E. Oddie *et al.*); two, 25th to 26th September, one with injured leg remaining to 3rd October (P. J. Grant, Z. Karpowicz *et al.*); another two, 2nd October (D. B. Hunt); 10th to 12th October (D. B. Hunt *et al.*). Treseo, 9th to 10th September (B. J. Widden *et al.*). St Agnes, the injured individual, 4th to 11th October (P. J. Grant *et al.*).



Buff-breasted Sandpiper *Tryngites subruficollis*. More were seen in 1975 than in any previous year; airports are favourite haunts

Shetland: Sumburgh, 30th September (C. D. R. Heard, Mr and Mrs J. Woodland).

Somerset: Cheddar Reservoir, 3rd September (B. Rabbitts).

South Yorkshire: Wath Ings, 28th to 30th August, perhaps another, 20th to 21st September (J. Hewitt, M. Turton, R. Wells). Redmires Reservoir, Sheffield, 10th to 26th September (D. Herringshaw, R. T. Hobson, D. Gosney *et al.*).

Strathclyde: Strathclyde Loch, Hamilton, 13th September (R. Norman).

Suffolk: Walberswick, 28th August to 5th September (G. J. Jobson, W. Urwin, C. S. Waller *et al.*).

Tyne and Wear: near St Mary's Island, Whitley Bay, 20th September (J. S. Booth, J. A. Bould).

West Yorkshire: Blackmoorfoot and Deerhill Reservoirs, 28th to 29th August (J. E. Dale, M. L. Denton, G. M. Yates *et al.*); perhaps another, Blackmoorfoot Reservoir, 15th to 17th September (F. J. Roberts *et al.*).

Wiltshire/Gloucestershire: Ashton Keynes, 11th September (J. G. Snowball).

(North America) In Ireland, there were at least eleven in September, with at least six at North Bull, Co. Dublin (up to four on 7th, 9th, 11th, 21st and 25th to 1st October), two at Hook Head, Co. Wexford, on 20th and three at Ballycotton, Co. Cork, on 21st. After only the sixth ever spring record, there was an autumn flood. A minimum of 60 birds in Britain and Ireland completely overshadowed the notable influxes of 1970, 1971 and 1973. Simultaneous first occurrences over wide areas in Britain were most obvious on 28th August, 3rd, 10th to 15th and 20th September. Northerly records were not significantly later than southerly ones—indeed, there were some in Scotland before any in Scilly—and a broad-front movement across the Atlantic is indicated. The date of the Cheshire bird looks odd: the main flight to the Maritime Provinces of north-east America did not begin until 23rd August, though flocks of up to 18 were obvious there in the last ten days of that month, and on 3rd September.

Broad-billed Sandpiper *Limicola falcinellus*

Dorset: Herbury Gore, Fleet, 18th May (C. E. Richards).

(North Eurasia) Another spring record, typical of the last four years, brings the grand total to 50.

Wilson's Phalarope *Phalaropus tricolor*

Avon: Chew Valley Lake, 17th to 18th September (J. A. McGeoch, B. Rabbitts *et al.*).

Lincolnshire/Norfolk: Wisbech sewage farm. ♂, 7th to 11th June (H. Mayer-Gross, J. A. W. Moyes, B. Walker *et al.*).

Powys: Llyn Hilyn Lake, 6th September (Mrs J. M. Bromley, K. A. Mason, A. Mountford *et al.*).

Shetland: Strand Loch, ♀, 9th May (F. Hunter *et al.*).

(North America) Also one at Akeragh Lough, Co. Kerry, from 26th August to 6th September. A total of 73 has been seen in

Britain and Ireland in the 21 years since the first in 1954. Although unusually common in north-east America (with a major arrival there on 24th August), this wader did not join the Buff-breasted Sandpipers in a large transatlantic flight.

Black-winged Pratincole *Glareola nordmanni*

Leicestershire: Wanlip gravel pits, 10th to 13th August (D. Gamble, C. Towe *et al.*).

(South Russia and west Asia) The fourteenth ever and in the same month as seven others.

Pratincole *Glareola pratincola* or *G. nordmanni*

Suffolk: Covehithe, 22nd August (J. Barber).

West Sussex: Selsey Bill, 3rd September (G. J. Barker).

A detailed review of past pratincole records, especially those pre-1958, is required.

Ring-billed Gull *Larus delawarensis*

West Glamorgan: Blackpill, the adult recorded from 28th November 1974 (*Brit. Birds*, 68: 320) was last seen on 30th March; second adult, 24th January to 24th April (R. A. Hume, K. E. Vinicombe *et al.*); third adult, 21st March (K. E. Vinicombe); fourth adult, 22nd to 25th April (D. W. Evans, K. E. Vinicombe, R. P. S. Wolsey *et al.*); first-summer, 23rd June to 22nd July (H. E. Grenfell, K. E. Vinicombe, R. P. S. Wolsey *et al.*); adult, 17th November to 16th April 1976 (P. G. Lansdown, K. E. Vinicombe *et al.*).

(North America) The remarkably acute observers of Blackpill maintained their monopoly of this gull during 1975. At least five individuals have been involved since the first in March 1973.

Laughing Gull *Larus atricilla*

Shetland: Fair Isle, adult, 13th September (R. A. Broad, D. J. Buckler, D. R. Waugh *et al.*).

(North America) This individual, the second Scottish record, which takes the grand total to nine, occurred a day after a Bonaparte's Gull *Larus philadelphia* on Islay and during the main influx of Buff-breasted Sandpipers.

Bonaparte's Gull *Larus philadelphia*

Dorset: Christchurch Harbour, adult, 9th to 12th April (M. J. Arnold, C. I. Husband, Dr R. G. Mayall *et al.*).

Strathclyde: Loch Indaal, Islay, adult, 26th to 27th June (K. and Mrs A. Verrall); Claggain Bay, Islay, adult, 12th September (L. Catlin, K. Verrall).

(North America) After an absence in 1974, there is a good showing. The grand total reaches 31, 17 since 1967. Early spring records are unusual.

Ross's Gull *Rhodostelthia rosea*

Cleveland: Seaton Carew, adult, 6th and 9th April (E. C. Gatenby, G. Icton, D. Nelson); immature, 8th August (A. Vittery).

Shetland: Scalloway, immature, 19th to 29th January (D. Coutts, R. Johnson *et al.*).

(North-east Siberia) These three take the grand total to 15, all but two since 1958, and add to the scattered monthly occurrence pattern.

White-winged Black Tern *Chlidonias leucopterus*

Avon: Chew Valley Lake, two, 14th June (A. R. Ashman); adult, 8th to 12th August (M. W. A. Martin, A. J. Merritt, K. E. Vinicombe *et al.*).

Dyfed: Ginst Point, adult, 6th September (Drs R. C. and F. H. Milner).

East Sussex: Pett Pools, immature, 29th to 30th August (R. Auger, P. Ewins, N. Riddiford *et al.*).

Grampian: Meikle Loch, 25th May (M. A. Macdonald *et al.*).

Greater London: Queen Mary Reservoir, immature, 8th August (M. J. Rogers).

Kent: Sandwich Bay, immature, 9th August (R. Martin, D. Tutt *et al.*); Dungeness, immature, 16th to 28th August (N. Riddiford, A. T. M. Ruck *et al.*); immature, 24th September to 4th October (N. Riddiford, A. J. B. Thompson *et al.*).

Norfolk: Winterton, immature, 10th August (R. and S. Ludford, R. C. McIntyre).

North Yorkshire: Fairburn Ings, immature, 25th August (Dr J. D. Pickup, C. G. Varty, J. Whitehead *et al.*).

South Yorkshire: Wombwell Ings, 19th June (J. Seeviour, R. Wells *et al.*).

West Sussex: Oving gravel pits, immature, 24th to 30th August (M. J. W. Hay, R. J. Senior, J. G. Threadgold).

(South-east Europe, west and east Asia) Ireland did exceptionally well, with one at Swords estuary, Co. Dublin, on 19th to 20th August, another at South Slob, Co. Wexford, on 18th September, and three in September at Ballycotton, Co. Cork, on 6th and 9th to 13th (two, one staying to 21st). A return to form, after a poor showing in 1974; the grand total is now about 300, over 200 since 1963.

Whiskered Tern *Chlidonias hybrida*

North Yorkshire: Fairburn Ings, adult, 13th September (H. Shorroek *et al.*).

(South Eurasia, parts of Africa, and Australia) This single record brings the grand total to 57.

Gull-billed Tern *Gelochelidon nilotica*

East Sussex: Rye Harbour, 24th August (N. Pinder).

Lincolnshire: Boston Point, adult, 7th September (R. C. Broadbent, F. Butwright).

(Almost cosmopolitan, nearest breeding colony in Denmark) A poor showing, with no spring record for the first time since 1969.

Caspian Tern *Hydroprogne caspia*

Essex: Colne Point, 29th June (Dr S. Cox), and Fingringhoe Wick, 1st to 2nd July (I. Pearson).

Grampian: Ythan estuary, 25th June (A. H. Cuthbert).

Kent: Reculver, 1st June (D. C. Gilbert).

Warwickshire: Bodymoor Heath, 6th to 11th July (R. J. Jennett, T. P. Milsom *et al.*).

(Almost cosmopolitan, nearest breeding colonies in Baltic) The Essex records refer to the same individual. The total since 1958 is now 78.

Pallas's Sandgrouse *Syrhaptes paradoxus*

Fife: Isle of May, two, 11th May (J. M. S. Arnott, I. Balfour-Paul, J. H. B. Munro).

(Central Asia east to Manchuria and China) The recent rarity of this almost mythical steppe species is well known. There are only four other records for the last 67 years and the good fortune of these three observers will be widely acknowledged.

Black-billed Cuckoo *Coccyzus erythrophthalmus*

Cleveland: Redcar, trapped, 23rd to 24th September (G. W. Follows *et al.*).

(North America) Only the seventh ever, and associated with a marked influx of Nearctic passerines to western Britain.

Snowy Owl *Nyctea scandiaca*

Shetland: Fetlar, four on 6th February; pair and three ♀♀, 3rd April; as in 1974 (*Brit. Birds*, 68: 322), ♂ mated to two ♀♀, with another ♀ present on 14th May; one ♀ laid three eggs, but these were abandoned; second ♀ laid six eggs, four hatched, and all young successfully fledged; during August, in addition to the pair and four young, there were two ♀♀ present; one ♀ seen on 27th September (R. J. Tulloch *et al.*). Unst, Lund, 13th March (per R. J. Tulloch); Stourhoull, ♂, 8th May (J. and C. Whyte); Hermaness, 12th May (per M. Sinclair); Burra-firth, 6th June (per M. Sinclair); Lund, ♀, 10th to 12th, 15th and 21st June, 9th July, 14th to 15th August, and at Helliers Water, 26th and 31st October (I. Spence *et al.*). North Roe, 2nd February (A. Inkster). Whalsay, 19th to 20th April (J. H. Simpson). Foula, late May (per J. G. Holbourn). Ronas Hill, 16th July (R. Ashcroft).

Western Isles: St Kilda, ♂, 26th May (H. Brown *et al.*).

(Circumpolar Arctic) Once again, only one certain vagrant away from Shetland. We hear of others wintering, notably in Grampian, but alas we see no documentation of them.

Alpine Swift *Apus melba*

Devon: Dawlish Warren, 4th October (V. B. and Mrs M. A. Hicks).

Greater London: Staines Reservoir, 19th September (V. R. Leclercq, W. McCubbin *et al.*).

Kent: Dover, 7th June (T. Wyatt). Kingsgate Bay, Thanet, 19th July (D. B. Carter).

Lincolnshire: Donna Nook, 20th July (B. and Mrs S. Leffay).

Norfolk: Salthouse Heath, 19th June (J. P. Guest *et al.*).

Oxfordshire: Cholsey, 14th July (A. W. Williams).

(South Eurasia, north-west and east Africa) The total since 1958 is now about 111. Three in July is unusual.

Roller *Coracias garrulus*

Dorset: West Milton, 16th to 21st June (Mr and Mrs A. Dale, Mr Harris).

Dumfries and Galloway: Ae Forest, 18th June (M. Marquiss, D. Moss).

(South and east Europe, west Asia and north-west Africa) These two bring the total to 45 since 1958.

Yellow-bellied Sapsucker *Sphyrapicus varius*

Silly: Tresco, immature ♂, 26th September to 6th October (D. B. Hunt *et al.*).

(North America) Still under consideration by the BOU Records Committee. Although recorded in Iceland, it is odd that this species should be the first Nearctic woodpecker safely to reach a tree in Britain. The more robust Yellow-shafted Flicker *Colaptes auratus* has long seemed a better bet: see *Brit. Birds*, 56: 157-164.

Bimaculated Lark *Melanocorypha bimaculata*

Silly: St Mary's, 24th to 27th October (D. S. Flumm *et al.*).

(Caucasus and south-west Asia) Only the second record here of this relative of the Calandra Lark *M. calandra*. The first appeared on Lundy, Devon, in May 1962 (*Brit. Birds*, 58: 309-312).

Short-toed Lark *Calandrella cinerea*

Gwynedd: Bardsey, 17th to 19th October (P. E. Davis, D. A. Henshilwood, P. Hope Jones *et al.*); probably another, 28th October (D. A. Henshilwood).

Norfolk: Holme, 27th October to 16th November (P. R. Clarke, G. Walbridge *et al.*).

Silly: St Mary's, 13th to 21st September, two, 22nd to 24th, three, 25th to 29th, four, 30th to 7th October (W. E. Oddie, G. Summers, G. G. Williams *et al.*); two, apparently different individuals, 16th to 18th October (P. J. Grant, J. A. Hazell *et al.*); 25th October to 4th November, another, 1st to 8th November (R. H. and Mrs M. E. Charlwood, D. B. Hunt). St Martin's, 3rd to 17th October (D. S. Flumm, P. J. Grant, R. V. A. Marshall *et al.*). Tresco, 12th October (B. Bland, J. N. Dymond *et al.*).

Shetland: Fair Isle, 20th to 26th April (R. A. Broad, P. J. Roberts *et al.*); probably another, 4th to 9th May (R. A. Broad, T. Nisbet *et al.*); 21st to 27th September (R. A. Broad, P. G. Lansdown, P. J. Roberts *et al.*); two, 8th to 9th October, one to 14th (R. A. Broad, A. R. Lowe, P. J. Roberts *et al.*). Whalsay, 4th to 5th October (Dr B. Marshall, J. H. Simpson); 19th to 20th October (J. H. Simpson).

Suffolk: Walberswick, 7th September (A. M. Cage, C. Cuthbert, C. S. Waller *et al.*).

(South Eurasia, north and east Africa) The best ever showing of this engaging small lark. The total of at least 20 individuals (18 in autumn) is twice the average of the last eight years. The grand total is now about 150.

Crested Lark *Galerida cristata*

Kent: Dungeness, 28th September to 1st October (P. J. Grant, P. S. Redman, N. Riddiford *et al.*).

(Continental Europe south from Baltic, south Asia, north-west and upland equatorial Africa) This, the first record since 1972, takes the grand total to 18. This very sedentary lark clearly flinches from a Channel crossing.

Red-rumped Swallow *Hirundo daurica*

Dorset: Radipole Lake, 22nd to 25th May (P. Foster, Dr N. R. Rogers, R. Wolfenden *et al.*).

Greater London: Wanstead Park, 4th June (N. Borrow, P. Vines).

Kent: Stodmarsh, 11th May (G. J. Hinchon, J. N. Hollyer, T. J. Lawrence).

(South and east Eurasia, and Africa) The grand total is now 41.

Dusky Thrush *Turdus naumanni*

Shetland: Firth, 6th to 13th November (D. Coutts, B. P. Walker *et al.*).

(Northern and central Siberia) The fifth ever, and the fourth since 1958.

Black-throated Thrush *Turdus ruficollis*

Norfolk: Holkham, immature, 21st to 24th October (Miss W. U. Flower, D. G. Wright *et al.*).

(Central Asia) Scores of observers are indebted to the two named above for a sight of this splendid thrush, only the fifth to reach Britain. It was remarkably tolerant of the human beings who surrounded its favourite bramble patch.



Black-throated Thrush *Turdus ruficollis*

American Robin *Turdus migratorius*

Western Isles: St Kilda, 14th to 15th February (C. Brown *et al.*).

(North America) The grand total is now at least 13, ten of them in the months November to February.

White's Thrush *Zoothera dauma*

Shetland: Whalsay, 11th October (J. H. Simpson).

(Central, east and south-east Asia and Australia) Although only the seventh since 1958, it would have been surprising if this classic Asian vagrant had not reached Britain during the astonishing autumn of 1975.

Hermit Thrush *Hylocichla guttata*

Shetland: Fair Isle, 2nd June (R. A. Broad, P. J. Roberts, S. Rumsey *et al.*).

(North America) The first for Britain and Ireland. Previous records of this genus in Europe have been concentrated in late autumn, but an Olive-backed Thrush *H. ustulata* reached Co. Mayo, Ireland, in May 1956.

Black-eared Wheatear *Oenanthe hispanica*

Dorset: Portland Bill, ♂, 14th June (A. Barber, L. Mulford, I. S. Robertson *et al.*).

Norfolk: Cley, ♂, 13th May (P. Tate). Holme, ♂, 2nd to 21st June (H. Ramsay *et al.*).

(South Europe, south-west Asia and north-west Africa) Three overshooting males (a close repeat of the 1974 occurrences) take the grand total to 31.

Stonechat *Saxicola torquata*

Stonechats showing the characters of one or other of the eastern races *S. t. maura* or *stejnegeri*, colloquially known as Siberian Stonechats, were recorded as follows:

Dorset: Portland Bill, 24th October (D. J. Fisher, S. J. M. Gantlett, I. S. Robertson *et al.*).

Shetland: Fair Isle, 10th to 17th October (R. A. Broad, P. J. Roberts *et al.*).

Northumberland: Holy Island, 18th October (R. G. Lewis, T. R. Palmer).

(Eastwards from north-east Russia) These three take the grand total to 17. A review of the British status and the field characters of this group is in preparation.

Red-flanked Bluetail *Tarsiger cyanurus*

Fife: Isle of May, immature, trapped, 14th October (I. Balfour-Paul, J. H. B. Munro, G. L. Sandeman).

(North-east Europe, across Asia to Japan) One of the autumn's highlights and the sixth ever. We wonder how many others skulked undetected in the cover of Britain's east coast.

Redstart *Phoenicurus phoenicurus*

Norfolk: Heacham, adult ♂, showing the characters of the distinctive subspecies *P. p. samamisticus*, colloquially known as Ehrenberg's Redstart, 26th October (G. M. S. Easy, C. A. E. Kirtland, R. C. Mansfield).

(South Russia, through Asia Minor to Iran) The first record here of this beautiful race, which is characterised by a blaze of white on the wing, recalling the adult male Black Redstart *P. ochrurus*.

Thrush Nightingale *Luscinia luscinia*

Fife: Isle of May, trapped, 31st May to 6th June (H. Galbraith, Dr M. P. Harris, M. Sutherland).

Western Isles: St Kilda, trapped, 29th to 30th May (Dr M. P. Harris).

(Scandinavia, east Europe and west Asia) Two more overshooting adults, the latter only just avoiding the North Atlantic; the grand total is now 28.

Siberian Rubythroat *Luscinia calliope*

Shetland: Fair Isle, trapped, 9th to 11th October (R. A. Broad, A. R. Lowe, P. J. Roberts *et al.*).

(Siberia) Still under consideration by the BOU Records Committee. Long hoped for, this longer-legged relation of the Blue-throat *L. svecica* (surprisingly, relatively uncommon in 1975) reached Britain at last. There are old records for France and Italy. It should be noted that its close relative, the Himalayan Rubythroat *L. pectoralis*, is imported as a cage-bird. It may also be noted here that a Siberian Blue Robin *L. cyane* was trapped on Sark, Channel Islands, on 27th October.

Cetti's Warbler *Cettia cetti*

Avon: Chew Valley Lake, ♀, trapped, 25th February to 20th April (R. H. Creighton *et al.*).

Berkshire: Wraysbury, pair, 18th July (C. F. Tydeman). Thatcham, trapped, 19th October to 26th December (R. Crockford *et al.*).

Cornwall: Marazion Marsh, 20th September (Dr M. A. Cotton, H. A. Dean, A. R. Kitson *et al.*).

Devon: southern locality (not one of following sites), pair bred, successfully rearing at least two young, 24th May to at least 21st September (R. M. Belringer, M. R. Edmonds, D. G. Warman *et al.*). South Milton Ley, four trapped, 29th to 30th November, 7th, 8th and 16th December (R. Burridge, R. F. A. Resource). Slapton Ley, the individual first recorded on 19th November 1974 (*Brit. Birds*, 68: 325) remained to 13th April, and a second was present during January to

April; one during August and two singing during October; eight singing birds from late December into 1976 (R. M. Belringer, M. R. Edmonds *et al.*).

Dorset: Lodmoor, ♂, 25th April to 20th May (D. J. Fisher, D. C. Gilbert *et al.*); 12th to 29th October (D. C. Gilbert). Hengistbury Head, ♂, 18th May (C. I. Husband).

East Sussex: Beachy Head, trapped, 3rd May (R. H. and Mrs M. E. Charlwood). Litlington, 16th to 19th September (P. J. Wilson).

Hampshire: Itchen Navigation, Eastleigh, 19th to 22nd February (S. Buckland, S. N. Delany).

Hertfordshire: River Colne, ♀, trapped, 14th December remained until 9th January 1976 (N. R. Jones *et al.*).

Kent: Stour Valley and area, about 60 singing males during the breeding season, with nesting proved at several sites. Sandwich Bay, 20th April (A. T. M. Ruck); 1st June (D. M. Batchelor). Dungeness, ♀, trapped, 14th October (H. A. R. Caw-kell, N. Riddiford *et al.*); 4th to 6th November (T. P. Inskip). Burham, Maidstone, 26th October (A. M. Woodcock). A north-western locality, ♂, 20th to 25th May (observer's name withheld).

Norfolk: Yare Valley, 12 singing males during the breeding season, with several records of proved nesting. Bure Valley, one singing male during the breeding season (G. E. Dunmore, R. Martins *et al.*).

Shropshire: locality withheld, 14th to 27th December (R. Stokes).

Suffolk: Minsmere, 8th March (per H. E. Axell).

West Midlands: Edgbaston Park, Birmingham, ♂, 2nd May to 12th July, trapped on 17th May (S. Bingham).

West Sussex: locality withheld, pair bred successfully, April to August (R. S. Cragg, D. C. Geoghegan *et al.*).

(South and west Europe, south-west Asia and north-west Africa) Also one on Cape Clear Island, Co. Cork, on 8th October. With yet another mild winter in the series since 1962/63, this colonising species appears to be rapidly consolidating its position, with breeding proved in four southern English counties.

Lanceolated Warbler *Locustella lanceolata*

Shetland: Fair Isle, three, two trapped, 11th October, one remaining to 14th, a fourth on 14th (R. A. Broad, S. G. Cook, A. R. Lowe *et al.*).

(East Eurasia from central Russia to north Japan) The text comment on this species following the 1973 records (*Brit. Birds*, 67: 332) has been corrected by Dr J. T. R. Sharrock (*Brit. Birds*, 69: 109-110). These four, constituting the first multiple arrival, take the grand total to 19.

Savi's Warbler *Locustella luscinioides*

Cornwall: Marazion Marsh, ♂, 14th to 24th May (T. J. S. Pinfield, H. P. K. Robinson, L. P. Williams *et al.*).

Dorset: Eyebidge, Wimborne, ♂, 9th to 18th May (D. J. and K. M. Godfrey *et al.*). Wareham, ♂, 30th May (C. J. Bibby).

Kent: Stodmarsh, ♂, 22nd April, and subsequently one pair which reared four

young, and one unmated ♂ (P. J. Mountford *et al.*). Westbere, ♂, 4th May (D. B. Rosair).

(Europe, west and central Asia and north-west Africa) It is sad to see that this species failed to reappear in Suffolk, after breeding in the five years 1970-74. These records from only three counties are in striking contrast to those of Cetti's Warblers *Cettia cetti*.

Great Reed Warbler *Acrocephalus arundinaceus*

Hampshire: Fleet Pond, ♂, 20th May to 1st June (S. J. M. Gantlett *et al.*).

Merseyside: Red Rocks, ♂, trapped, 17th to 19th May (E. J. Abraham, C. Jones, D. Woodward *et al.*).

(Europe and west-central Asia) As in 1974, two records of this robust, loud-singing reed warbler were welcome, but, like the last species, it is not fulfilling the promise of its comparative abundance in the 1960's.

Blyth's Reed Warbler *Acrocephalus dumetorum*

North Yorkshire: Filey Brigg, 30th August (R. H. Appleby, C. R. Clark).

(North-east Europe, across Asia to Mongolia) The difficulty of identification may well be obscuring the true status here. This individual and one on Cape Clear Island, Co. Cork, in October 1969 (*Brit. Birds*, 63: 214-216) constitute the only accepted records since 1928.

Aquatic Warbler *Acrocephalus paludicola*

Cheshire: Frodsham, 31st August to 12th September (R. Arrowsmith, Dr J. A. Eyre, C. R. Linfoot *et al.*).

Cornwall: Marazion Marsh, six immatures—three, two trapped, on 26th August, one trapped on 5th September, one on 17th to 18th September, and one on 21st to 26th September, trapped on 22nd (R. B. Hastings, P. D. Round, V. R. Tucker *et al.*). St. Ives, 15th to 20th September (E. Griffiths *et al.*).

Dorset: Wick Hams, Christchurch, six immatures trapped—7th August, 10th, two on 14th, 18th and 19th (R. G. Booth, S. E. Christmas, C. I. Husband *et al.*). Radipole Lake, eleven immatures trapped—three on 11th August, 15th, 19th and 21st, two on 2nd September, two on 3rd, and 4th to 6th (G. R. M. Pepler *et al.*).

East Sussex: Litlington, 30th August (P. J. Wilson).

Humberside: Spurn Point, trapped, 9th to 11th August (J. Cudworth, C. Masingham, B. R. Spence *et al.*).

Kent: Dungeness, 2nd September (Rev. H. M. Hill); 10th to 14th September (F. Lockwood, W. Spencer).

Mid-Glamorgan: Kenfig Pool, 17th August (P. G. and Mrs C. M. Lansdown).

Norfolk: Blakeney Point, 5th to 6th September (D. J. Holman *et al.*).

Powys: Llangorse Lake, immature trapped, 17th August (M. V. Preece, P. D. Rose *et al.*).

Scilly: St Mary's, 26th September (C. R. Ireland).



PLATE 33. Red-breasted Goose *Branta ruficollis* with Brent Geese *B. bernicla*.
Essex, October 1975 (page 332) (photos: Pamela Harrison)



PLATE 34. Above, Surf Scoter *Melanitta perspicillata*, Isles of Scilly, October 1975 (page 331) (photo: K. C. Osborne). Below, two Long-billed Dowitchers *Limnodromus scolopaceus*, Cornwall, October/November 1975 (page 335) (photo: J. B. and S. Bottomley)





PLATE 35. Above left, Red-backed Shrike *Luscinia sibilatrix*, one of the group of red-tailed races, West Sussex, March-April 1975 (page 353) (photo: Maurice H. Wright); right, Bobolink *Dolichonyx oryzivorus*, Isles of Scilly, October 1975 (page 355) (photo: K. C. Osborne). Below, Killdeer *Charadrius dominicensis* with a Lapwing *Vanellus vanellus*, providing useful size comparison, Lancashire, September-November 1975 (page 335) (photo: R. J. Chandler).



PLATE 36. Sir Julian
Sorell Huxley, MA, DSc,
FRS (1887-1975) in
Jordan in May 1963
(pages 395-397) (photo:
Eric Hosking)



Shetland: Fair Isle, two immatures trapped, 9th to 10th August and 18th August (R. A. Broad, P. J. Roberts, D. Willis *et al.*).

Somerset: Steart, eleven immatures, ten of them trapped—two on 9th August, two on 11th, 15th, 18th, 23rd, two on 28th, one remaining to 29th, and 13th September (A. W. Evans), and an unringed individual on 29th August (B. Rabbitts).

(East Europe and west Asia) This total of 46 is three times the number reported in 1974 and is on a par with those of 1972 and 1973. The grand total is now over 360, almost two-thirds of them since 1968.

Subalpine Warbler *Sylvia cantillans*

Cleveland: Hartlepool, ♂, 8th May (M. A. Blick, W. E. Fletcher *et al.*).

Cornwall: Porthgwarra, ♂, 18th May (J. Johns, H. P. K. Robinson *et al.*).

Dorset: Portland Bill, ♂, trapped, 15th April to 7th May (G. Gregory, P. K. Kinnear, I. S. Robertson *et al.*).

Shetland: Fair Isle, ♂, trapped, 9th May (R. A. Broad, D. J. Frost *et al.*): ♂ and ♀, both trapped, 8th June, ♂ remaining to 10th (R. A. Broad, P. J. Roberts *et al.*).

(South-west Europe, Middle East and north-west Africa) Six make up the largest spring influx on record of this classic overshooting passerine, and take the grand total to 58.

Desert Warbler *Sylvia nana*

Essex: Frinton-on-Sea, 20th to 21st November (Miss P. Harris, J. K. and Mrs D. J. Weston *et al.*).

Humberside: Spurn Point, trapped, 20th to 24th October (I. Corbett, M. Mills, B. R. Spence *et al.*).

(Middle East, central Asia and north-west Sahara) Both of the nominate Asiatic race, these are the second and third ever. The Spurn bird frequented a pile of bricks and roosted in an isolated buckthorn near a sandy beach, a biotope with some resemblance to its native habitat; similarly, the Frinton bird favoured low vegetation along a concrete sea-wall. There was one in Finland on 17th October.

Greenish Warbler *Phylloscopus trochiloides*

Dorset: Portland Bill, immature, trapped, 5th September (J. Guest, I. S. Robertson *et al.*); 13th September (R. J. Johns, I. S. Robertson *et al.*).

Humberside: Bampton Cliffs, singing ♂, 6th June (R. G. Hawley, S. C. Madge).

Kent: Dungeness, singing ♂, 6th June (N. Riddiford, A. T. M. Ruck); immature, trapped, 20th September (P. W. Burness, P. J. Grant, N. Riddiford *et al.*).

Man: Calf of Man, singing ♂, 7th June (W. G. Dye, R. J. Haycock, P. Pratley).

(Eurasia east from north-east Germany) The geographical spread of the early June influx of singing males was unprecedented; it recalls the influx that led to breeding in Sweden in the 1950's. The total moves on to 103. It should be noted that the identification

of this species (liable to confusion with the Arctic Warbler *P. borealis* and various eastern races of the Chiffchaff *P. collybita*) is still worrying the committee.

Bonelli's Warbler *Phylloscopus bonelli*

Berkshire: Small Mead Farm gravel pit, Reading, 23rd August (M. Coath, C. J. Mackenzie-Grieve *et al.*).

Dorset: Hengistbury Head, singing ♂, 31st May (T. J. Christmas, C. I. Husband, G. R. Sherwood).

Scilly: St Mary's, 7th May (R. W. Allen, D. B. Hunt). St Agnes, 2nd September (Dr P. H. Smith).

(Central, west and south Europe, Levant and north-west Africa)
Four in one year is more than usual. The grand total is now 40, all since 1948.

Arctic Warbler *Phylloscopus borealis*

Fife: Isle of May, trapped, 6th September (P. N. J. Clark, D. W. Oliver, H. D. Smith *et al.*).

Norfolk: Titchwell, trapped, 5th July (P. R. Clarke, J. Reynolds).

Scilly: St Agnes, 23rd September, another on 24th, both remaining until 27th (Z. Karpowicz, P. Naylor, G. Summers *et al.*).

(North-east Europe, north Asia and Alaska) The Norfolk individual was the earliest ever by a clear month. The grand total moves on to 84.

Pallas's Warbler *Phylloscopus proregulus*

Cornwall: Porthgarra, 1st November (G. S. Gay, B. K. Mellow *et al.*).

Dorset: Portland Bill, immature, trapped, 29th to 31st October (S. J. M. Gantlett, I. S. Robertson *et al.*). East Weare, Portland, 1st November, perhaps the Portland Bill individual (C. E. Richards).

East Sussex: Beachy Head, 2nd November (J. F. Cooper, D. A. and T. W. Parmenter *et al.*).

Fife: Isle of May, 21st October (M. W. Fraser, S. R. D. da Prato *et al.*).

Gwynedd: Bardsey, trapped, 7th November (D. A. Henshilwood, A. W. and Mrs E. J. Strick).

Humberside: Flamborough Head, two, 10th November (P. A. Lassey, I. Smith, D. I. M. Wallace). Spurn Point, three, all trapped, 14th to 17th, 18th, and 19th to 22nd October (D. Okill, B. R. Spence *et al.*).

Kent: Dungeness, trapped, 21st October (T. P. Inskipp, N. Riddiford *et al.*). Sandwich Bay, trapped, 11th October, another trapped, 12th, both to 13th, one to 15th, another on 15th, a fourth individual, trapped, on 24th (J. N. Hollyer, M. R. Lawn, M. Sutherland *et al.*).

Lincolnshire: Saltfleetby, 16th October (R. H. Higgins, C. L. Ottoway). Gibraltar Point, 19th to 22nd October (K. Atkin, M. Mellor, A. G. Parker *et al.*).

Norfolk: Holkham, 11th to 14th October, two on 15th (F. K. Cobb, J. C. Eaton, S. C. Joyner *et al.*). Happisburgh, trapped, 17th October (Mrs B. M. F. Unsworth). Scolt Head Island, 17th October (J. D. Brown).

Northumberland: Farne Islands, 19th October (P. Hawkey, I. J. Proctor, C. Watts *et al.*). Low Hauxley, 13th to 16th November (B. Little, E. R. Meek, A. M. Taylor *et al.*).

North Yorkshire: Scarborough, 15th November (R. H. Appleby).

Silly: St Mary's, 17th October (P. J. Grant, G. and A. May *et al.*); perhaps the same individual, 20th to 22nd and 24th (D. S. Flumm, G. J. Hinchon *et al.*).

Shetland: Fair Isle, 10th to 11th October (R. A. Broad, A. R. Lowe, Dr B. Marshall *et al.*).

Tayside: Killichonan, Loch Rannoch, 15th October (W. D. Campbell).

(Central, east and south-east Asia) Although no longer to be classed as one of the rarest vagrant passerines, this species is still perhaps one of the most attractive. The influx of about 28 in 1975 was the largest ever and it gained much by being set among a three-figure flood of Yellow-browed Warblers *P. inornatus*. For seven splendid weeks, the east coast woods were full of these two delightful, tiny warblers. The Tayside bird had penetrated Britain deeper than any other; the tendency towards generally earlier arrival continues. The grand total leaps to 89; yet there were only four before the 1960's.

Dusky Warbler *Phylloscopus fuscatus*

Norfolk: Wells, 14th to 16th October (G. B. Brown, S. C. Joyner, N. Williams *et al.*). Blakeney Point, 18th October (G. E. Dunmore *et al.*).

(Central and north-east to south-east Asia) These two take the grand total to 18. As befits this cover-seeking, ground-feeding *Phylloscopus*, they left behind a long trail of frustrated would-be observers.

Radde's Warbler *Phylloscopus schwarzi*

Norfolk: Brancaster, 17th October (F. K. and Mrs A. E. Cobb). Holkham, 18th to 20th October (D. M. Norman, R. B. H. Smith *et al.*); another, 25th to 26th October (P. A. Dukes, G. J. Jobson, E. T. Welland *et al.*).

(Central and east Asia) This trio takes the grand total to 17. The dates are typical.

Collared Flycatcher *Ficedula albicollis*

Shetland: Out Skerries, ♂, 13th May (A. R. Lowe, W. E. Oddie).

(Central and south-east Europe, west Russia and south to Iran) All but one of the previous six were also in spring. The Out Skerries clearly attract goodies.

Tawny Pipit *Anthus campestris*

Dyfed: Skomer, two, 8th October (J. E. and Mrs H. M. Davis).

East Sussex: Horse Eyc Levels, 30th April (D. S. Flumm, M. J. Rogers). Beachy Head, 27th August, another, 31st August, three, 17th September (R. H. and Mrs M. E. Charlwood).

Lincolnshire: Tetney Haven, 15th October (A. Parker).

Scilly: St Mary's, adult, 3rd to 13th October (J. A. Hazell, J. A. Lucas *et al.*); immature, 7th October (D. Page *et al.*); perhaps another adult, 10th October (D. I. M. Wallace).

Surrey: Cleygate Common, Pirbright, 23rd March (J. R. Mullins).

(Europe, south Asia and north-west Africa) Not every rarity was commoner than usual in 1975: this is the smallest total of this species since 1968. The Surrey individual was the earliest ever in spring.

Olive-backed Pipit *Anthus hodgsoni*

Norfolk: Wells, 10th October (S. C. Joyner, N. Williams).

(North-east Russia, central and east Asia) The fifth British record; note the simultaneous arrival with the next two species.

Pechora Pipit *Anthus gustavi*

Shetland: Fair Isle, 10th October (R. A. Broad, S. G. D. Cook, A. R. Lowe *et al.*).

Suffolk: Minsmere, 27th April (H. E. Axell, P. J. Makepeace *et al.*).

(North-east Russia, central and east Asia) The Suffolk individual was the first ever in spring. The grand total is now at least 21.

Red-throated Pipit *Anthus cervinus*

Scilly: St Agnes, 27th April (J. R. H. Clements, R. E. Turley). St Mary's, 10th to 11th October (D. J. Holman *et al.*); another, 16th October (J. N. Dymond, P. J. Grant, D. J. Holman *et al.*).

Shetland: Fair Isle, two, 24th to 25th May, three, 26th, one staying to 27th, one to 28th and one to 31st (R. A. Broad, H. Nash, D. Woodward *et al.*); 4th June (H. Nash); 8th to 17th September (R. A. Broad, G. Walbridge, S. Whitehouse *et al.*); 20th to 25th September (V. A. Lister *et al.*); another, 26th to 27th September (D. Willis *et al.*). Out Skerries, 14th to 18th September (D. J. Fisher, C. A. Harbard, T. A. Walsh *et al.*).

Strathclyde: Tobermory, Mull, 7th May (R. Coomber).

(Arctic Eurasia) Also one on Cape Clear Island, Co. Cork, on 8th October. It should be remembered that this pipit winters as far west as Morocco. Astonishingly, the Irish individual and one Little Bunting *Emberiza pusilla* were the only major rarities of probable eastern origin west of Scilly. The total of 13 was the highest ever, and takes the grand total to 100.

Citrine Wagtail *Motacilla citreola*

Shetland: Fair Isle, immature, 7th to 18th September (R. A. Broad, P. J. Roberts *et al.*).

(East European Russia and west-central Asia) The grand total is now 21 in 21 years.

Lesser Grey Shrike *Lanius minor*

Dyfed: Ferryside, adult, 13th October (P. Bond).

Norfolk: Holme, adult, 25th October to 4th November (P. R. Clarke *et al.*).

Northumberland: Elwick, adult ♂, found dead, 20th September (D. O'Connor).

(South and east Europe and south-west Asia) Three is about average and takes the grand total to 96.

Woodchat Shrike *Lanius senator*

Dorset: Hengistbury Head, 20th April (C. I. Husband, D. N. Smith). Portland Bill, 19th May (C. E. Richards, I. S. Robertson *et al.*). Wytch, Corfe Castle, 31st May (D. J., K. M. and Mrs M. Godfrey).

Dyfed: Skomer, 24th to 25th May (J. E. Davis *et al.*); 7th June (T. R. Birkhead, P. Chard).

Scilly: St Mary's, adult, 9th October (R. V. A. Marshall, Miss S. Vere Benson); immature, 10th October (G. Clark, W. E. Fletcher, D. J. Holman).

Shetland: Fair Isle, immature, 13th to 20th August (R. A. Broad, P. J. Roberts, D. Willis *et al.*).

(West and central Europe, south-west Asia and north-west Africa) Eight is below par, but, in the general context of the spring of 1975, a low showing is not surprising.

Red-backed Shrike *Lanius collurio*

Individuals showing the characters of one of the *isabellinus* group of red-tailed races were recorded as follows:

Norfolk: Holkham, 12th to 13th October (G. B. Brown, S. C. Joyner, R. Martins *et al.*).

West Sussex: Sidlesham, 1st March to 20th April (P. Clement, J. G. Threadgold *et al.*) (plate 35a).

(South Asia, across to China) The sixth and seventh ever of one of these distinctive races. Earlier records were in September, October and, once, May. The Sussex individual is considered likely to have been an escape from captivity.

Rose-coloured Starling *Sturnus roseus*

Berkshire: Purley, Reading, adult, 14th to 16th July (N. J. Bucknall, Mr and Mrs Jones).

Dyfed: Ystumtuen, Devil's Bridge, adult, 25th to 26th July (Rev and Mrs R. J. Blakeway-Phillips).

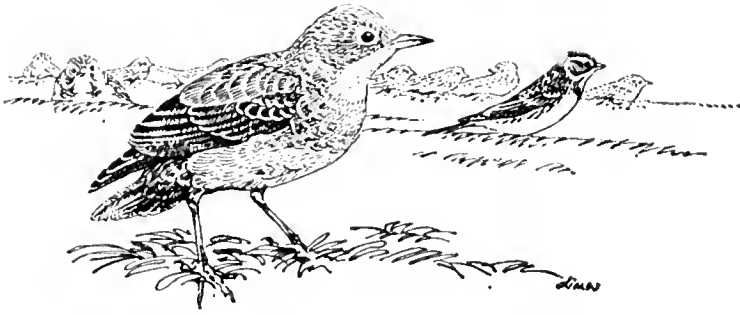
Lochaber: Fort William, adult, 28th to 29th August (R. M. Morrison).

Norfolk: Winterton, adult, 31st July (A. Boote).

North Yorkshire: Hutton Rudby, Yarm, adult, 31st August (P. and Mrs T. N. Gilbert).

Orkney: Finstown, adult, 17th to 26th July (D. Lea, E. J. Williams *et al.*).

Scilly: St Martin's, immature, 3rd to 6th October (M. Coath, P. J. Grant, D. I. M. Wallace *et al.*). St Mary's, immature, 13th to 17th October (M. A. Blick, D. B. Hunt *et al.*).



Rose-coloured Starling *Sturnus roseus* (immature) and Rustic Bunting *Emberiza rustica*

Shetland: Fair Isle, adult, 28th July to 16th August (Mrs J. A. Broad, Miss A. Shearer *et al.*).

Somerset: Minehead, adult, 2nd November and 9th December (Mrs J. Harding, F. Porter).

Sutherland: Insheigra, Kinlochbervie, adult, 14th July (C. and J. Waltho *et al.*).

Tyne and Wear: East Boldon, adult, 12th July (R. Adams).

(South-east Europe and south-west Asia) The total of 12 is more than twice the average (and it is likely that there are at least two others worthy of submission). Most past records have been in June to September, but the July influx of seven adults was noticeably widespread and the most striking of recent years.

Red-eyed Vireo *Vireo olivaceus*

Gwynedd: Aberdaron, 25th to 26th September (A. H. Morley, Rev R. S. Thomas).

(North America) The eighth record; all have been in Ireland or western Britain.

Black-and-White Warbler *Mniotilta varia*

Silly: St Mary's, 27th to 30th September (M. Coath, A. Holliman, R. B. H. Smith *et al.*).

(North America) Forty years after the first (in Shetland in October 1936), this extraordinarily patterned bird gave hours of delight to many observers for four days, but hours of agony to those who searched for it in October.

Tennessee Warbler *Vermivora peregrina*

Shetland: Fair Isle, immature, trapped, 6th to 18th September (R. A. Broad, C. D. Heard, G. Walbridge *et al.*); immature, trapped, 24th September (R. A. Broad, P. J. Roberts *et al.*).

(North America) Still under consideration by the BOU Records Committee. The first and second records in Britain and Ireland. This species has spread to north-east Siberia, where it overlaps with the somewhat similar Arctic Warbler *Phylloscopus borealis*.

Blackpoll Warbler *Dendroica striata*

Scilly: St Agnes, 19th to 20th October (P. W. Burness, G. J. Jobson, D. B. Rosair *et al.*); considered the same individual, 31st October to 1st November (R. J. Burness, A. P. Goddard, M. A. Hollingworth *et al.*).

(North America) Only the fourth record of this species, which is abundant on autumn passage in east America and might be expected to reach Europe more often. Perhaps associated with this record was a Catbird *Dumetella carolinensis* at St Brelade's Bay, Jersey, in mid-October.

Bobolink *Dolichonyx oryzivorus*

Scilly: St Mary's, 9th October (P. J. Grant, D. J. Holman, K. C. Osborne *et al.*) (plate 35b).

Shetland: Out Skerries, 18th September (C. A. Harbard, I. Sandison, T. A. Walsh *et al.*).

(North America) Only the fourth and fifth records of this strange grassland passerine.

Arctic Redpoll *Acanthis hornemanni*

Orkney: North Ronaldsay, immature, trapped, 15th October (J. M. B. King).

Shetland: Fair Isle, immature, trapped, 14th to 15th November (R. A. Broad).

In addition, sight records of redpolls showing the characters of *A. hornemanni* were reported as follows:

Humberside: Flamborough Head, 11th October (P. A. Lassey, I. Smith). Spurn Point, 21st October (D. I. M. Wallace).

Shetland: Fair Isle, two on 9th to 10th October, three on 11th to 12th, one remaining to 18th (R. A. Broad, A. R. Lowe, Dr B. Marshall *et al.*).

(Circumpolar Arctic) Our publication of records of this species is open to criticism. It is not our task, however, to define genetic purity and, as in 1972, these records should be seen in the context of a heavy autumn passage of Mealy Redpolls *A. f. flammea*. Several flocks of the latter contained the apparent hybrids that so cloud the issue, but seven or so of those listed here showed the typical 'ghostly' appearance of Arctic Redpolls.

Serín *Serinus serinus*

Cornwall: Porthgwarra, 26th October (P. D. Round).

Devon: Lundy, 3rd November (M. and Mrs W. Rogers).

Dorset: Southwell, Portland, two ♂♂, one ♀, 19th to 20th April (P. A. Dukes, N. Marshall, I. S. Robertson *et al.*). East Wearc, Portland, two ♀♀, 10th May (C. E. Richards). Portland Bill, 4th December (F. R. Clifton, I. S. Robertson).

Dyfed: Ynys-hir, Dovey estuary, 28th October (S. C. Madge).

East Sussex: Cuckmere Haven, 26th April (D. S. Flumm). Beachy Head, ♀, 19th April (R. H. Charlwood); 11th May (M. J. Rogers).

Kent: Dungeness, ♀, 11th May (D. L. Davenport, M. A. Hollingworth, R. E. Turley *et al.*).

Scilly: St Agnes, 2nd November (R. J. Burness). St Mary's, 31st October (T. P. Inskip); two, 19th December (D. B. Hunt). Treco, 30th September (R. J. Johns).

(Continental Europe, Mediterranean, Asia Minor and north-west Africa) Also one on Cape Clear Island, Co. Cork, on 11th and 12th November. The usual rather confusing scatter of apparently vagrant birds in spring and autumn into winter, with still no real indication of the eagerly awaited colonisation of Britain.

Scarlet Rosefinch *Carpodacus erythrinus*

Devon: Lundy, 19th to 20th May and, presumably the same individual, singing ♂ in 'brown' plumage, trapped, 1st June (C. C. Baillie, I. G. Black, A. M. Taylor *et al.*); immature, trapped, 17th September to 10th October (C. C. Baillie, N. A. Clark, M. Rogers *et al.*).

Humberside: Kilnsea, 18th to 19th October (C. D. R. Heard).

Norfolk: Holkham, 29th August (D. M. Williams)

Orkney: Copinsay, 4th August (M. A. S. Beaman, G. G. Bunting).

Scilly: St Agnes, 29th September (M. Brazil, P. A. Dukes, P. Nichols).

Shetland: Fair Isle, at least 13 individuals (of which two trapped) during autumn, all immature or ♀—13th August, 31st August to 6th September, four on 7th, three to 10th, one to 11th, 17th to 18th, two on 20th, one to 24th, two on 25th to 27th, one to 30th, 10th October, 20th to 24th October (R. A. Broad *et al.*). Fetlar, 28th August (H. Prendergast, M. C. Robinson). Out Skerries, eight individuals during autumn, all immature or ♀—four on 24th August, two on 7th September, 8th to 9th, 12th to 14th September (D. J. Fisher, C. A. Harbard, T. A. Walsh *et al.*). Whalsay, 3rd September (J. H. Simpson). Grutness, 29th September to 1st October (P. Rock, Mr and Mrs J. Woodland). Uyeasound, Unst, 26th to 28th August (I. K. Saunders, I. Spence).

(East Europe and across Asia, and east Turkey to Himalayas) About 30 is a lower score than in 1973 (40) or 1974 (35), but the trend away from its former extreme rarity and localisation at Fair Isle remains pronounced. Even so, it is puzzling that the autumn of 1975 did not produce a bumper crop. The total since 1958 has now passed 310.

Pine Grosbeak *Pinicola enucleator*

Northumberland: Holy Island, ♂, 11th to 12th May (R. Crabb, E. R. Meek *et al.*).

(Scandinavia, across Asia, and North America) This fine, northern finch was one of the surprises of the year. All but one of the eight previous records were in autumn.

Two-barred Crossbill *Loxia leucoptera*

Norfolk: Sandringham, ♂, 16th February (J. Campton, G. Parker).

(Northern Eurasia and North America) Another winter male brings the grand total to over 60, but the species remains a true rarity.

Scarlet Tanager *Piranga olivacea*

Scilly: Tresco, immature ♂, 28th September to 3rd October (R. E. Alderton, G. C. Hearl *et al.*).

(North America) Only the second record; the first was also on the Isles of Scilly.

Pine Bunting *Emberiza leucocephala*

Dorset: Southwell, Portland, ♂, 15th April (G. Walbridge).

(Eastern Russia, across Asia to Sakhalin) Only the fourth ever; an isolated occurrence that is difficult to relate to those of other species. Immatures closely resemble young Yellowhammers *E. citrinella*—sometimes regarded as conspecific—and are, therefore, perhaps overlooked.

Black-headed Bunting *Emberiza melanocephala*

Dorset: Portland Bill, ♂, 26th May (I. S. Robertson, G. Walbridge *et al.*).

Shetland: Out Skerries, ♂, 22nd to 29th August (G. Armstrong, D. J. Fisher, Dr B. Marshall *et al.*).

(South-east Europe and south-west Asia) These two take the grand total to about 40.

Yellow-breasted Bunting *Emberiza aureola*

Humberside: Spurn Point, ♂, 14th to 15th June (J. Cudworth, Mr and Mrs C. Massingham *et al.*).

Shetland: Fair Isle, 7th to 18th September, another 17th to 18th September (R. A. Broad, P. Kennerley, G. Walbridge *et al.*).

(North-east Europe and north Asia) Three is fewer than in the last few years, but the Spurn individual was the first ever in spring: apart from an old July record, all others have been in August to October. The grand total is now 56.

Rustic Bunting *Emberiza rustica*

Cleveland: Redcar, 9th to 10th May (M. A. Blich, C. D. R. Heard, H. Mitchell *et al.*).

Dyfed: Skokholm, ♂, trapped, 6th to 7th June (M. de L. Brooke, A. B. Heath *et al.*).

Fife: Isle of May, immature ♀, trapped, 30th September to 6th October (N. K. Atkinson, D. L. Bell, M. Nichol *et al.*).

Lincolnshire: Gibraltar Point, ♂, 11th May (A. O. Aitken, K. Knowles).

Norfolk: Cley, 18th October (A. J. L. Smith *et al.*); another, ♂, 19th to 22nd October (R. J. Johns, A. J. L. Smith, D. I. M. Wallace *et al.*).

Northumberland: Blyth, 15th to 16th October (B. Galloway, B. Little, E. R. Meek *et al.*).

Scilly: St Martin's, 5th October (J. East, P. J. Grant *et al.*). St Mary's, immature ♂, 31st October (D. B. Hunt).

Shetland: Fair Isle, ♂, 26th to 29th May (G. J. Barnes, S. Rumsey, D. Woodward *et al.*); ♂, 3rd to 6th June (R. A. Broad, H. Nash, P. J. Roberts *et al.*); immature, trapped, 10th to 25th October (R. A. Broad, Dr B. Marshall, P. J. Roberts *et al.*); ♂, 9th November (S. Thomson, J. and Mrs E. Watt). Fetlar, 27th to 29th May (P. Clement, B. de Kruffy, M. C. Robinson *et al.*). Out Skerries, ♂, 27th May (R. W. Allen).

(North-east Europe and north Asia) Unlike the Yellow-breasted Bunting *E. aureola*, with similar origins, this species occurred in record numbers. With seven in spring and eight in autumn, the grand total moves on to 103. This species is being increasingly noted as an autumn migrant in Sweden.

Yellow-browed Bunting *Emberiza chrysophrys*

Norfolk: Holkham, 19th October (D. J. Holman, J. Kemp, M. Parker).

(North-east Asia and east China) Still under consideration by the BOU Records Committee. This remarkable occurrence is the first for Britain and Ireland, although there are old records for both Belgium and France. The date is coincident with many of the other extreme rarities from the east.

Little Bunting *Emberiza pusilla*

Devon: Lundy, 12th to 13th October (N. A. Clark, M. Rogers).

Northumberland: Holy Island, three, 23rd to 26th September (S. Anderson, T. Cadwallender, Prof. J. D. Craggs); two, 26th October (P. G. Williams, B. and L. Tollit).

Ross and Cromarty: Dingwall, trapped, 16th to 17th November (A. R. Mainwood *et al.*).

Scilly: St Martin's, 6th October (G. J. Hinchon, K. C. Osborne, D. Willis *et al.*).

Shetland: Fair Isle, 4th to 5th May (R. A. Broad, S. Holmes, P. J. Roberts *et al.*); 17th May (R. A. Broad, P. J. Roberts); 29th September to 1st October (R. A. Broad, C. D. Heard, C. J. Mackenzie-Grieve *et al.*); two, 10th to 16th October, one to 25th, trapped on 24th (R. A. Broad, A. R. Lowe, Dr B. Marshall *et al.*); 11th to 19th November (R. A. Broad).

(North-east Europe and north Asia) Also one on Cape Clear Island, Co. Cork, on 7th-11th October. Two in spring and 13 in autumn match the pattern of the previous species and, together, give the highest total in any one year. Mainland records are always indicative of an unusual passage. The grand total is now about 193.

Slate-coloured Junco *Junco hyemalis*

Gloucestershire: Haresfield, 1st to 12th April (A. Richardson, R. S. Warren, G. L. Webber *et al.*).

Gwynedd: Bardsey, trapped, 25th April to 3rd May (D. Hardaker, D. A. Henshilwood, Mrs E. J. Strick *et al.*).

(North America) These two bring the total to seven, all of which have been in spring.

Rose-breasted Grosbeak *Pheucticus ludovicianus*

Essex: Leigh-on-Sea, immature ♂, 20th to 21st December, and 4th January 1976 (Mr and Mrs A. M. Feather).

(North America) Only the fifth record, but the first from an eastern locality. This bird brings the total number of American passerines to reach Britain in 1975 to eleven (a Rufous-sided Towhee *Pipilo erythrophthalmus* at Spurn Point, Humberside, has not yet been fully considered by the committee). With the addition of the Catbird (already mentioned under Blackpoll Warbler) and another Rose-breasted Grosbeak on Sark, Channel Islands, on 26th September, the full figure is 13.

Amendment to the 1968 report

Myrtle Warbler *Dendroica coronata*

Scilly: the first date was 22nd October, not 23rd.

Amendments to the 1974 report

Purple Heron *Ardea purpurea*

Norfolk: the last date was 17th September, not 2nd.

American Wigeon *Anas americana*

Lincolnshire: the last date was 24th February, not 14th.

Surf Scoter *Melanitta perspicillata*

Northumberland: the individual last seen at Bamburgh on 10th February was observed at Budle Point on 15th and Ross Links on 16th.

White-winged Black Tern *Chlidonias leucopterus*

Kent: the last date was 8th September, not 7th.

Royal Tern *Sterna maxima*

Cheshire: Hilbre Island, 8th September (R. Anderson, K. A. Dummigan, J. C. Gittins *et al.*).

Flintshire: Point of Air, 22nd September (B. Boothby).

(West Africa, North America and the Caribbean) These two sightings, clearly relating to one individual, were originally accepted as Royal or Caspian Tern (*Brit. Birds*, 68: 322), but, after reconsideration, the committee decided that the descriptions could refer only to a Royal Tern. Together, they constitute the fourth British and Irish record.

Alpine Swift *Apus melba*

Outer Hebrides: this entry should be deleted; it refers to Snowy Owl *Nyctea scandiaca*.

Supplementary 1960 record accepted

Stonechat *Saxicola torquata*

Durham: Hartlepool, showing the characters of one of the eastern races *S. t. maura* or *stejnegeri*, 26th October (A. Vittery).

Supplementary 1964 record accepted

Stonechat *Saxicola torquata*

Shetland: Fair Isle, showing the characters of one of the eastern races *S. t. maura* or *stejnegeri*, 1st November (R. H. Dennis, C. S. Waller, E. J. Wiseman *et al.*).

Supplementary 1965 records accepted

Alpine Swift *Apus melba*

Yorkshire: Spurn Point, 16th May (P. F. Bonham).

Stonechat *Saxicola torquata*

Shetland: Fair Isle, showing the characters of one of the eastern races *S. t. maura* or *stejnegeri*, 5th to 6th October (R. H. Dennis, A. Heath *et al.*).

Supplementary 1967 record accepted

King Eider *Somateria spectabilis*

Aberdeenshire: Ythan estuary, ♂, 5th October (Dr C. H. Fry).

Supplementary 1969 record accepted

Short-toed Treecreeper *Certhia brachydactyla*

Kent: Dungeness, trapped, 27th to 30th September (R. E. Scott).

(Central and south Continental Europe and north-west Africa)
Now accepted by both the Rarities Committee and the BOU Records Committee as the first record of this species in Britain and Ireland. A further 13 records are still under consideration.

Supplementary 1971 record accepted

Serín *Serinus serinus*

Suffolk: Dunwich, ♀, 15th June (R. J. Johns).

Supplementary 1972 records accepted

Gull-billed Tern *Gelochelidon nilotica*

Norfolk: Weybourne, adult, 12th August (R. J. Johns, P. J. McCann).

Short-toed Lark *Calandrella cinerea*

Scilly: St Agnes, 31st October (R. J. Johns).

Stonechat *Saxicola torquata*

Norfolk: Cley, ♂, showing the characters of one of the eastern races *S. t. maura* or *stejnegeri*, 6th May (R. A. Richardson).

Aquatic Warbler *Acrocephalus paludicola*

Sussex: Chichester gravel pits, immature, trapped, 3rd September (Dr A. B. Watson *et al.*).

Pallas's Warbler *Phylloscopus proregulus*

Scilly: Treco, 2nd November (R. J. Johns).

Supplementary 1973 records accepted

Little Egret *Egretta garzetta*

Dumfries: Waterfoot, Annan, 12th April to 2nd June (T. Johnson-Ferguson *et al.*).

White-winged Black Tern *Chlidonias leucopterus*

Lancashire: Longton Marsh, adult, 11th to 12th August (M. E. Greenhalgh, Dr P. H. Smith *et al.*).

Red-rumped Swallow *Hirundo daurica*

Middlesex: Staines Reservoir, 17th May (R. J. Johns).

Cetti's Warbler *Cettia cetti*

Berkshire: Thatcham, trapped, 1st April (I. Hawthorn *et al.*).

Aquatic Warbler *Acrocephalus paludicola*

Hampshire: Wick Hams, Christchurch, adult, trapped, 13th August; immature, trapped, 20th August (S. E. and T. J. Christmas *et al.*).

Arctic Warbler *Phylloscopus borealis*

Shetland: Gulberwick, 22nd September (J. and Mrs V. Spriggs, N. Storie).

Serín *Serinus serinus*

Scilly: St Agnes, 14th October (R. J. Johns).

Supplementary 1974 records accepted

Cory's Shearwater *Calonectris diomedea*

Cornwall: between Isles of Scilly and Land's End, 27th July (J. B. and Mrs S. Bottomley).

Purple Heron *Ardea purpurea*

Lancashire: Leighton Moss, immature, 15th May (P. J. Marsh, J. Wilson, J. Wood *et al.*).

Norfolk: Strumpshaw, 19th May (R. Martins).

Suffolk: Minsmere, immature, 19th to 29th June (H. E. Axell, J. F. Denny *et al.*); another, immature, 19th to 20th and 26th to 27th August (H. E. Axell, P. J. Makepeace *et al.*).

(South-central Eurasia, north to Netherlands, and Africa) These four additional records bring the total for 1974 to at least 14.

Cattle Egret *Bubulcus ibis*

Gloucestershire: Slimbridge, 20th August (S. E. M. Goodsall, E. E. Jackson, Lady Scott *et al.*); see page 329.

Kent/Sussex: Wittersham/Maytham, 8th to 15th August (K. and P. T. Dann, P. J. Grant *et al.*); almost certainly an escape from captivity.

Black Stork *Ciconia nigra*

Outer Hebrides: Valley Strand, North Uist, 26th to 30th August (J. B. O. Rossetti *et al.*).

(Spain, east Europe to east Asia, and southern Africa) The second Scottish record, taking the grand total to 34.

Teal *Anas crecca*

Ross-shire: Balblair, near Culrain, ♂, showing the characters of the North American race, *A. c. carolinensis*, 7th June (T. H. Wall).

American Wigeon *Anas americana*

Kinross: Loch Leven, ♂, 20th October to 6th November (T. O. James, Miss B. H. Moore *et al.*).

Surf Scoter *Melanitta perspicillata*

Kirkcudbrightshire: Carrick Point, ♂, 13th November (W. and Mrs K. Jackson).

Red-footed Falcon *Falco vespertinus*

Lancashire: Leighton Moss, ♂, 17th to 18th May (P. J. Marsh, J. Wilson, J. Wood *et al.*).

Norfolk: Holme, ♀, 17th May (P. R. Clarke, K. K. Harrison).

Suffolk: Minsmere, ♂, 2nd and 19th May (H. E. Axell, P. J. Makepeace *et al.*).

(East Europe and south from Siberia) These three bring the total for 1974 to 13.

Lesser Yellowlegs *Tringa flavipes*

Cheshire: Sandbach, 27th August to 18th September (W. D. Forshaw, G. Summers *et al.*).

Lancashire: Altcar, Formby, 28th September (D. R. Williams *et al.*).

(North America) The Lancashire bird was clearly the individual seen at Martin Mere over the next two days and subsequently at Freckleton (*Brit. Birds*, 68: 317).

Marsh Sandpiper *Tringa stagnatilis*

Lancashire: Martin Mere, 13th to 16th September (P. Gladstone *et al.*).

(South-east Europe and west and east Asia) This makes two in 1974 and 20 in all.

White-rumped Sandpiper *Calidris fuscicollis*

Hampshire: Pennington Marshes, 10th August (R. Dunn, E. J. Wiseman).

Buff-breasted Sandpiper *Tryngites subruficollis*

Shetland: Fair Isle, 8th September (R. A. Broad, D. Willis *et al.*).

Black-winged Stilt *Himantopus himantopus*

Somerset: Steart, 19th December (G. B. Hall, P. A. R. Hockey, W. Stephens).

(Southern Eurasia, Africa, Australasia and the Americas) The second for 1974 and on an interesting date.

Collared Pratincole *Glareola pratincola*

Hampshire: Fleet Pond, 28th May (T. Henderson, R. G. Millington, G. Stephenson).

Lancashire: Scotsman's Flash, Wigan, 23rd to 26th May (W. D. Forshaw, M. L. Passant *et al.*). Freckleton, 24th to 29th May (M. J. Ainscough, T. Henderson, Dr P. H. Smith *et al.*).

(South Europe, south-west Asia and Africa) These three records within six days constitute the most marked spring influx ever; with one in Shetland in July (*Brit. Birds*, 68: 319), the 1974 total was four.

White-winged Black Tern *Chlidonias leucopterus*

Kent: Dungeness, immature, 4th September (R. E. Scott).

Caspian Tern *Hydroprogne caspia*

Dorset: Chesil Beach, Abbotsbury, 15th June (R. J. Johns).

Great Spotted Cuckoo *Clamator glandarius*

Lincolnshire: Donna Nook, 1st July (S. Lorand).

(South Europe, south-west Asia and Africa) Only the seventeenth record.

Scops Owl *Otus scops*

Cornwall: Saltash, found injured, died later, 18th May (P. F. Goodfellow, L. Hurrell, W. Sharpe).

(South Europe, Russia, west Asia and north-west Africa) There have now been 72 records, but this is only the seventh since 1958.

Snowy Owl *Nyctea scandiaca*

Orkney: Loch of St Treadwell, Papa Westray, two, 5th November (W. Irvine).

Outer Hebrides: pair, January to April, ♂ all year, ♀ in different area 17th September (localities withheld) (W. A. J. Cunningham, P. G. Hopkins, R. MacIntyre).

Cetti's Warbler *Cettia cetti*

Hampshire: north-west Solent area, 24th March to 21st April (G. P. Green, E. J. Wiseman).

Savi's Warbler *Locustella luscinioides*

Dorset: Portland Bill, 29th April (F. R. Clifton, A. Wigzell).

Kent: Stodmarsh, singing ♂, 6th April, another on 10th, and a third on 7th May; all three ♂♂ held territory through the breeding season, one pair definitely bred and a second pair very probably bred (P. J. Mountford).

Great Reed Warbler *Acrocephalus arundinaceus*

Kent: Stodmarsh, 26th May (T. E. Bowley, J. F. and S. L. Woolard).

(Europe and west-central Asia) This takes the total since 1958 to 62.

Paddyfield Warbler *Acrocephalus agricola*

Scilly: St Mary's, 30th September to 15th October (D. S. Flumm, N. A. G. Lord, M. J. Rogers *et al.*).

(South Russia and Asia) A second record for 1974, featuring a bleached adult in moult, which led its observers through a terrible maze of reeds (and identification criteria). The fifth ever and the first in the south-west.

Bonelli's Warbler *Phylloscopus bonelli*

Dorset: Brownsea Island, Poole, 19th August (A. J. Wise).

Tawny Pipit *Anthus campestris*

Dorset: Portland Bill, 21st to 25th August (F. R. Clifton, G. L. Webber *et al.*); 15th September (F. R. Clifton, G. Walbridge *et al.*).

Durham: Saltholme Pool, Teesmouth, two, 10th July (T. Francis).

Sussex: Beachy Head, 29th September (P. Clement).

(Europe, south Asia and north-west Africa) Four records (of five birds) take the 1974 total to about 27. The two in Durham in July are particularly noteworthy; a Short-toed Lark *Calandrella cinerea* was also summering nearby (*Brit. Birds*, 68: 323).

Woodchat Shrike *Lanius senator*

Dorset: Portland Bill, immature, trapped, 23rd August (F. R. Clifton, G. Walbridge *et al.*).

Orkney: Cairnton, Orphir, 9th to 16th June (D. Lea, A. MacNair *et al.*).

Serín *Serinus serinus*

Dorset: Durlston Head, ♂, 16th March (R. J. Johns).

Sussex: Selsey Bill, 25th May (B. A. E. Marr).

Scarlet Rosefinch *Carpodacus erythrínus*

Orkney: Eday, 1st to 7th September (R. D. Lowe *et al.*).

Black-headed Bunting *Emberiza melanocephala*

Dorset: Portland, ♂, 4th to 6th August (F. R. Clifton, G. Walbridge *et al.*).

Shetland: Fair Isle, ♀ or immature, 6th to 7th October (R. A. Broad, R. D. Moore, D. R. Waugh *et al.*).

Appendix 1: List of 1975 records not accepted

This list contains all the 1975 records not accepted after circulation to the committee. It does not include (a) those withdrawn by the observer(s), without circulation, after discussion with the honorary secretary; (b) those which, even if circulated, were not attributed by the observer(s) to any definite species; or (c) those mentioned in the monthly summaries in this journal, if full details were unobtainable. Birds considered to be escapes are also omitted.

In the vast majority of cases the record was not accepted because we were not convinced, on the evidence before us, that the identification was fully established; in only a very few cases were we satisfied that a mistake had been made.

Albatross sp	Cemaes Head, Dyfed, 20th August and 3rd September off Isles of Scilly, 1st October
Cory's Shearwater	Frenchman's Rocks, Islay, Strathclyde, 3rd August off Isles of Scilly, 1st October
Little Shearwater	St Ives, Cornwall, 26th May Sand Point, Weston-super-Mare, Avon, two, 27th May
Purple Heron	Hauxton gravel pit, Cambridgeshire, 3rd and 22nd August Langley Mill, Derbyshire, 21st August
Little Egret	Cliffe, Kent, 13th May
Night Heron	Laxford Bridge, Sutherland, 21st May
American Bittern	Fulbourn Fen, Cambridgeshire, 5th October
White Stork	Southerfield, Carlisle, Cumbria, 24th April
Black Stork	Woodwalton Fen, Cambridgeshire, 20th August

Steller's Eider	St Mawes Bay, Cornwall, ♀, 28th November
King Eider	North Ronaldsay, Orkney, ♀, 11th December
Lesser White-fronted Goose	Long Hope, South Walls, Orkney, ♀, 8th February
Black Kite	Buckenham, Norfolk, 5th February
Red-footed Falcon	near Weymouth, Dorset, 20th April
Lesser Kestrel	Marksbury, Bristol, Avon, 24th September
Crane	Errol, Tayside, ♀, 11th September
Baillon's Crake	Stithians Reservoir, Cornwall, 24th to 25th August
Killdeer	Walberswick, Suffolk, 26th November
Lesser Golden Plover	Cottenham, Cambridgeshire, two, 16th May
Dowitcher sp	Sticklepath, Okehampton, Devon, 17th June
Stilt Sandpiper	Meikle Loch/Ythan, Grampian, 26th to 27th July
Great Snipe	Shelford, Cambridgeshire, 10th September
Lesser Yellowlegs	Fingringhoe Wick, Essex, 27th January
Marsh Sandpiper	Marloes, Dyfed, 22nd June
Baird's Sandpiper	Ashton Keynes, Wiltshire, 28th to 29th September
White-rumped Sandpiper	Powderham, Exe estuary, Devon, 21st July
Semipalmated Sandpiper	Sidlesham, West Sussex, 16th September
Buff-breasted Sandpiper	Mundon, Essex, 2nd November
Broad-billed Sandpiper	Bowness, Cumbria, 7th December
Pratincole sp	Minsmere, Suffolk, 7th September
White-winged Black Tern	Cowpen Marsh, Teesmouth, Cleveland, 1st June
Whiskered Tern	Ham sewage farm, Berkshire, 12th August
Gull-billed Tern	Pitsford Reservoir, Northamptonshire, 9th September
Caspian Tern	Upthorpe, Stanton, Suffolk, 31st October
Alpine Swift	Washington Ponds, Tync and Wear, 4th to 8th September
Calandra Lark	St Mary's, Scilly, 24th October
Dusky Thrush	Cley, Norfolk, 9th November
Black-throated Thrush	Hamford Water, Essex, 16th August
American Robin	Cley, Norfolk, 22nd August
	Cley, Norfolk, 6th August
	Barassie, Strathclyde, 27th August
	Shipley Lake, Heanor, Derbyshire, 1st September
	Bridgend, Islay, Strathclyde, 20th November
	Howmore estuary, South Uist, Western Isles, 4th September
	Benacre, Suffolk, 5th September
	Pitsford Reservoir, Northamptonshire, 12th September
	Loch of Strathbeg, Grampian, 5th October
	Tillicoultry, Fife, 30th June
	Staines Reservoir, Greater London, 11th June
	Covenham Reservoir, Lincolnshire, 2nd September
	Heysham, Lancashire, 12th September
	Staines Reservoir, Greater London, 12th June
	Cley, Norfolk, 9th August
	St David's Head, Dyfed, 11th September
	Kingsgate Bay, Thanet, Kent, 19th July
	Pennard Cliffs, West Glamorgan, 28th June
	Purton, Wiltshire, 26th December
	St Agnes, Scilly, 7th October
	Netley, Hampshire, 2nd December

White's Thrush	Marchwiell, Wrexham, Clwyd, 2nd November
Black-eared Wheatear	South Uist, Western Isles, ♀, 28th July
Isabelline Wheatear	Isle of May, Fife, 31st August
Black Wheatear	Exe Head, Exmoor, Somerset, 11th September
Siberian Stonechat	Spurn Point, Humberside, 19th October
Savi's Warbler	Walberswick, Suffolk, 6th July
	Daventry Reservoir, Northamptonshire, 17th August
Moustached Warbler	Wick Hams, Christchurch, Dorset, 30th to 31st August
Aquatic Warbler	Sand Bay, Weston-super-Mare, Avon, 10th August
	Newton Poppleford, Devon, 17th August
	Stodmarsh, Kent, 5th September
	Portbury Wharf, Avon, two, 7th September
	Perry Oaks sewage farm, Greater London, 7th September
	Kenfig Pool, Mid-Glamorgan, 21st September
Greenish Warbler	Brighton, East Sussex, 29th August
	Hengistbury Head, Dorset, 21st September
	Tresco, Scilly, 14th October
	St Mary's, Scilly, 14th October
	St Mary's, Scilly, another, 15th October
	Scarborough, North Yorkshire, 18th October
	St Just, Cornwall, 28th October
Bonelli's Warbler	Marazion Marsh, Cornwall, 16th March
	Hengistbury Head, Dorset, 23rd to 24th August
Arctic Warbler	Llanishen Reservoir, South Glamorgan, 21st September
	Ythan, Grampian, 12th October
Dusky Warbler	Scarborough, North Yorkshire, 9th October
Alpine Accentor	Ramsgate, Kent, 7th May
Tawny Pipit	Clyne Common, West Glamorgan, 16th March
	Porth Henllys, St David's Head, Dyfed, 30th May
	Rye Harbour, East Sussex, 4th October
	Porthgwarra, Cornwall, 5th to 7th October
	Tresco, Scilly, 15th October
Red-throated Pipit	Walls, Shetland, 19th April
Lesser Grey Shrike	Saltfleetby, Lincolnshire, 19th October
	Hughenden, High Wycombe, Buckinghamshire, 20th November
Serin	Sand Point, Weston-super-Mare, Avon, 7th September
	Tetney Haven, Lincolnshire, 9th October
	near Barnstaple, Devon, seven, 4th December
	Sidlesham Ferry, West Sussex, 25th December
Scarlet Rosefinch	Holkham, Norfolk, 22nd September
	Barns Ness, Lothian, 27th September
Two-barred Crossbill	Glen Cova, Tayside, ♂, 19th December
Black-headed Bunting	Beachy Head, East Sussex, ♂, 5th October
Rustic Bunting	Hutton, Brentwood, Essex, 22nd October
Little Bunting	Tetney Lock, Lincolnshire, 4th June
	Fingringhoe Wick, Essex, 1st October
	Tresco, Scilly, 15th to 16th October

Appendix 2. Supplementary 1959 record not accepted

Rcd-throated Pipit Stirling Hill, Aberdeenshire, 2nd October

Appendix 3. Supplementary 1970 record not accepted

Great Snipe Ham sewage farm, Berkshire, 23rd October

Appendix 4. Supplementary 1971 records not accepted

American Wigeon Ythan estuary, Aberdeenshire, 28th August
Arctic Warbler St Agnes, Scilly, 9th October

Appendix 5. Supplementary 1972 record not accepted

Little Crake Eythrope Lake, Stone, Buckinghamshire, 15th
October

Appendix 6. Supplementary 1973 records not accepted

Lesser Golden Plover Stithians Reservoir, Cornwall, 10th September
Sharp-tailed Sandpiper Hayle, Cornwall, 6th October
White-winged Black Tern Whitsand Bay, Cornwall, 28th April

Appendix 7. Supplementary 1974 records not accepted

White Stork Kingston Seymour, Somerset, 10th April
Red-footed Falcon Sumburgh, Shetland, ♀, 16th May
Solitary Sandpiper Wisbech sewage farm, Lincolnshire/Norfolk, 28th
August
White-winged Black Tern Hickling Broad, Norfolk, two, 27th May
Gull-billed Tern Frampton Marsh, Lincolnshire, 15th September
Roller Tarbert, Harris, Outer Hebrides, 12th September
Siberian Stonechat Titchwell, Norfolk, 1st November and 9th December
Savi's Warbler Alfriston, Sussex, 14th June
Booted Warbler St Mary's, Scilly, 8th October
Arctic Warbler Wester Quarff, Shetland, 14th September
Rose-coloured Starling Marazion Marsh, Cornwall, 26th October
Scarlet Rosefinch Sheringham, Norfolk, ♂, 27th May
Little Bunting Washington, Durham, 18th and 25th September

J. N. Dymond, RSPB, The Lodge, Sandy, Bedfordshire SG19 2DL

Notes

Grey Herons eating Water Rails On 29th December 1974, Dr R. J. Raines and I were birdwatching at the Dee Marshes, Parkgate, Cheshire, when we noticed a Grey Heron *Ardea cinerea* eating a Water Rail *Rallus aquaticus*. On closer observation of the marshes, we could see Water Rails seeking shelter from the incoming tide on rafts of floating vegetation. Small groups of herons landed nearby, seized rails in their bills and then flew to shallow water, where they drowned their prey. At one stage, we saw four herons each devouring a rail. Though large concentrations of Water Rails (sometimes hundreds) are a feature of high tides at Parkgate, I know of only one previous instance of this behaviour by Grey Herons. If it continues, however, there may be a sharp decline in the wintering population of Water Rails on these marshes. CHRISTOPHER W. MURPHY
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Identification of Chough and Alpine Chough in flight In 'Studies of less familiar birds' (*Brit. Birds*, 63: 28-32), P. F. Bonham implied that the Chough *Pyrrhocorax pyrrhocorax* and Alpine Chough *P. graculus* are difficult to distinguish in flight. After watching both species daily for two weeks, in the Salang Kotal area of Afghanistan, during the summer and autumn of 1970, I was able to separate them readily at a distance of over a kilometre.

Apart from the distinctive call notes (that of the Alpine Chough always being the higher pitched), differences in the wing pattern

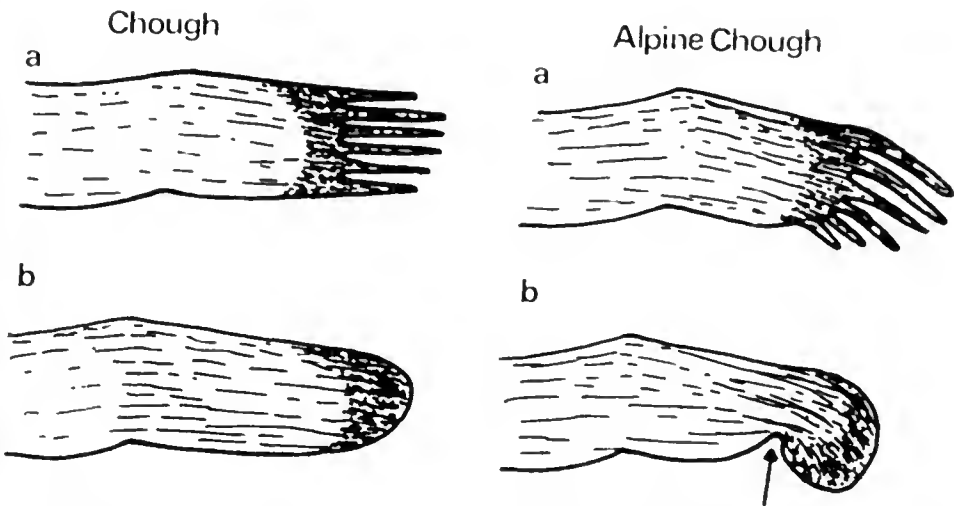


Fig. 1. Wing shapes of Chough *Pyrrhocorax pyrrhocorax* and Alpine Chough *P. graculus* when (a) gliding overhead, and (b) seen as distant silhouette. Note Chough's broader wings, with primaries held straighter, and the distinct notch (arrowed) in the Alpine Chough's wing

became apparent, which I have been unable to find referred to in any field guide. The Chough holds its primaries, or 'fingers', separately and straight out, giving a linear impression, whereas the Alpine Chough holds its separated primaries dropped back at an angle, giving an impression, at a distance, vaguely like the wing shape of the Lapwing *Vanellus vanellus* (see fig. 1). Further, the Chough's wing is broader, although not noticeably longer, than that of the Alpine Chough. The tail of the Alpine Chough also appears longer and slimmer, and, when gliding, not so fanned as that of the Chough, though this distinction is obvious only in an overhead or plan view.

My companion, S. C. Madge, confirmed that these characteristics made the two species easily separable.

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Attempted breeding by Pied Flycatcher in Northamptonshire

On 26th May 1972, during a routine check of nestboxes at Borough Fen Decoy, near Peterborough, I found the nest of a Pied Flycatcher *Ficedula hypoleuca* containing four eggs. The box was attached to the east side of a mature wych elm *Ulmus glabra* at 4.5 metres above the ground; the entrance hole was about 4.5 cm in diameter. On 27th May there were five eggs, and on 28th a female Pied Flycatcher was found sitting. She was seen again on three other occasions. On 14th June, well beyond the normal incubation period, the nest appeared deserted and permission was obtained to examine the eggs. Two of them were broken, but no embryo was evident; the other three were examined under a strong light and they also appeared clear. Together with three other observers, I watched the area during the incubation period, but no male bird was seen or heard.

This seems to be a new county record, although the species was recorded breeding in Lincolnshire on five occasions up to 1901 (*Bird Study*, 1: 81-101).

W. A. COOK

The Wildfowl Trust, Peakirk, Peterborough, Northamptonshire

The only nesting record for Argyll, in June 1951, similarly concerned an infertile clutch laid in a nestbox, and incubated for over a fortnight, but in that case the male was also seen. It is usual, of course, for the male to stake the territory and he may even build a partial nest while awaiting a female.

BRUCE CAMPBELL

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Bullfinches feeding from nut bag In Whitwell Wood, Derbyshire, Bullfinches *Pyrrhula pyrrhula* are regular visitors to a feeding-

station which has nut-filled mesh bags for the various tits *Parus spp.* On 23rd February 1975, a male Bullfinch made repeated attempts to extract a nut from a bag by hovering, before finally clinging to it and feeding much like a Greenfinch *Carduelis chloris*. The bag was suspended 1 metre from the ground. On 2nd March 1975, another observer witnessed the same method of feeding by a male Bullfinch, possibly the same bird. In this instance the height of the bag above the ground was 1.5 metres.

D. HILL

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Observers taking part in the British Trust for Ornithology's Garden Bird Feeding Survey have reported Bullfinches coming to feeding-stations: 25 out of 152 stations (16%) in 1970/71 and 33 out of 175 (19%) in 1975/76. In most cases, however, they took water rather than food. We know of no published instance of Bullfinches taking food from hanging nut baskets, but Song Thrush *Turdus philomelos*, Blackbird *T. merula*, Robin *Erithacus rubecula*, Dunnock *Prunella modularis* and Chaffinch *Fringilla coelebs* have been observed feeding in this way at Walberswick, Suffolk, by Dr C. Ramsdale (*in litt.*).

P. and E. WILLSON

Fieldfares, Ferry Lane, Medmenham, Marlow, Buckinghamshire

Letter

Function of the tail pattern in game-birds I was interested to read Collingwood Ingram's views (*Brit. Birds*, 67: 475-476) on the possible functions of the white tail spots in the Woodcock *Scolopax rusticola*.

White tips to the tail feathers are found in several species of gallinaceous birds, while many other species have lateral rectrices that are strikingly different in colour or pattern from the central tail feathers. The latter feature ensures that such patterns are visible only when the tail is spread. Duller central tail feathers are found also in several species of Charadriidae and Scolopacidae, for example the Killdeer *Charadrius vociferus*, which has white-tipped chestnut outer tail feathers and dull brown central feathers. The parallel between game-birds and certain waders appears to be carried further by the possession of pale tips on the undertail-coverts, seen in the Woodcock and in some 20 species in the families Tetraonidae and Phasianidae.

I have shown (*Ibis*, 118: 123-126) that, among game-birds, striking tail patterns are revealed when birds take flight, when a worried bird holds the tail in a spread position (behaviour which is particularly marked in the Bar-tailed Pheasant *Syrnaticus humiae*), and when females of certain species gather their broods. The undertail-coverts are revealed when a bird runs for cover and, to others in the rear, when an individual indulges in forward threat display. In all these circumstances, the patterns seem to represent intra-specific contact signals or following signals. Among dimorphic species, it is the females rather than the males that possess these plumage features, partly, no doubt, because they are often used between a female and her brood and partly because of the strong interrelationship between plumage and courtship behaviour in male game-birds.

Of the 36 gallinaceous species that show strong tail or undertail-covert patterns of the type described, about two-fifths live in forest areas and the rest in more open habitats. Four of the eight forest-dwelling species with brightly marked undertail-coverts are grouse, usually males, and, as in the Woodcock, the patterns seem mainly to be used in courtship. Nine of the ten open-country species with strong tail patterns belong to two genera, and they include the Red-legged Partridge *Alectoris rufa* and the Partridge *Perdix perdix*. In these two species, the bright rufous outer rectrices may act as a visual signal between flying birds or to others remaining on the ground. For the rest, there seems to be a tendency for species of open habitats to have clear undertail-covert patterns, which would be visible at a distance, and for species of thickly vegetated habitats to have striking tail patterns, which would be visible when flying up from the forest floor. Females of three, or possibly four, pheasant species have both tail and undertail-covert patterns well developed, while, in a number of male grouse, the pale tips to the rectrices are used primarily in courtship. G. W. H. DAVISON

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News and comment *Peter Conder*

Endangered species The expected failure of the Endangered Species (Import and Export) Bill to become law in this Parliamentary session (*Brit. Birds*, 69: 156-157) will allow conservationists and Government alike time to consider the reasoning behind passing laws of this nature. The object must be to try to save species

from extinction due to exploitation through trade, and all rare species, whether or not they are on the Convention, should be strictly licensed to achieve this.

In the Bill, as it now stands, a licence is needed for import or export of all birds except common species. These licences are theoretically issued only on the authoritative advice of the Scientific Advisory Committee to the Department of the Environment, but, amongst many conservationists, there is a suspicion that this opinion is often pressurised or watered down. Decisions must not be limited by what the Convention says is necessary or what Britain has a remit to do, what the trade might say or what is readily recognisable to a Customs official. If a species is endangered, that must be the sole arbiter.

Pheasants in release pens The British Field Sports Society, the Game Conservancy, the RSPB and WAGBI have recently published jointly the report in popular form on the results of the research carried out by David Lloyd over a two-year period. The aim of the project, organised by the four bodies, was to investigate avian predation of Pheasants. Tawny Owls take some poults, but the rate of predation can be reduced if the rearers take some simple precautions, and David Lloyd, in the report which is backed by the sporting organisations, says that there is a lot of unjustified killing. The booklet entitled 'The protection of Pheasants in release pens from birds of prey' can be obtained from the RSPB, The Lodge, Sandy, Bedfordshire, price 20p post free. A useful document to present to any diehard game preserver or, indeed, any bird protector who believes that birds of prey do no wrong.

European environment According to the Bulletin of the British Ecological Society, the Council of Ministers has agreed to the European Community's Environment Research Programme and allocated about \$19,000,000 to finance research in the years 1976-80 in four priority areas: pollutants and potentially toxic chemicals; information management with particular reference to chemicals; reduction and prevention of pollution and nuisances; and protection and improvement of the natural environment.

Peterson Nature Centre Roger Tory Peterson will have a nature centre named in his honour at his home town of Jamestown, New York. The \$80,000 centre, made possible by a foundation grant, will be on the Jamestown Audubon Society's 185-acre Burgeson Sanctuary and will enable the Jamestown Chapter to intensify its work in schools and at the sanctuary.

More RSPB reserves The RSPB announced in June that they had purchased two new reserves, rented a third and made additions to two existing ones. The new reserves are Strumpshaw Fen (Norfolk) and Noup Head, Westray (Orkney). Both are of considerable interest. Strumpshaw will require much of the RSPB's energetic management. The Noup is renowned as one of the best of Britain's seabird cliffs, but is surprisingly little known. The RSPB's holdings on the moorlands of mainland Orkney have now risen to 2,329 hectares, thanks to the generosity of one of its members whose gift enabled the Society to purchase an additional 675 hectares. The Society has added a further 26 hectares to its Loch Insh reserve, and also rented Sutton Fen, which is close to the RSPB headquarters and will be used for educational purposes.

Opinions expressed in this feature are not necessarily those of the editors of British Birds

May reports *D. A. Christie*

These are largely unchecked reports, not authenticated records

The weather during May was generally warm with several hot spells, particularly in the second week, and was dominated by winds from a southerly quarter, which encouraged the overshooting of southern migrants.

ALBATROSSES TO DUCKS

A **Black-browed Albatross** *Diomedea melanophris* was noted off Bardsey (Gwynedd) on 1st and the Hermaness (Shetland) individual returned during the month. The only **Cory's Shearwater** *Calonectris diomedea* reported was a single off St Agnes (Scilly) on 3rd.

Purple Herons *Ardea purpurea* were found at five places: Hampton Ridge in the New Forest (Hampshire) on 1st; Sevonoaks (Kent) on 2nd; Eday (Orkney) on 10th; Oxwich (West Glamorgan) from 21st to 27th; and Stodmarsh (Kent) and Chapel St Leonards (Lincolnshire), both on 30th. Several **Little Egrets** *Egretta garzetta* turned up, singletons at Thurlestone (Devon) on 17th, Cambridge on 18th and Thorney Island (West Sussex) on the last day of the month, while others were reported on unspecified dates from Scilly, Dorset and Norfolk. A **Night Heron** *Nycticorax nycticorax* stayed on Lundy (Devon) from 28th until 1st June. **Little Bitterns** *Ixobrychus minutus* were seen at Stodmarsh on 15th, Witton-le-Wear (Durham) from 23rd to 26th, and Leighton Moss (Lancashire) on 26th. Three **White Storks** *Ciconia ciconia* found their way to England: St Nicholas-at-Wade (Kent) on 1st, Dungeness (also Kent) on 11th (flying north) and in Merseyside, at Red Rocks, Meols and Seaforth, on 15th. There was an interesting arrival of **Spoonbills** *Platalea leucorodia* in the north-east of England: six came in to Washington (Tyne & Wear) on 24th, five of which remained for a few days; one was found nearby at Wallsend Swallow on 27th, staying until 1st June, when it moved on to Gosforth Park; interestingly, six were seen at Minsmere (Suffolk) on 30th and one appeared at Cley (Norfolk) during the month. A **Glossy Ibis** *Plegadis falcinellus* was present at Stodmarsh from 22nd to 30th, and one was reported from Wisbech sewage farm (Lincolnshire/Norfolk) during the month. The only rare duck of interest was a **Surf Scoter** *Melanitta perspicillata* flying past Hurst (Hampshire) on 15th.

RAPTORS TO CRANE

A **Goshawk** *Accipiter gentilis* appeared at Fair Isle (Shetland) on 6th. Overshooting **Black Kites** *Milvus migrans* reached Luddesdown (Kent) on 8th, Little Nelton (Norfolk) on 15th and Hardres (Kent) on 23rd. There were sightings of **Honey Buzzards** *Pernis apivorus* from eight places away from the New Forest: four were noted in north Scotland and three in Norfolk, while an interesting observation concerned three together over Gravesend (Kent) on 18th; we also received a late report of one flying south-west at Upper Enham (Hampshire) on the early date of 18th April. Only three **Montagu's Harriers** *Circus pygargus* were noted, at Lundy from 6th to 24th, Stodmarsh on 13th and Sheringham (Norfolk) on 16th. About 16 **Ospreys** *Pandion haliaetus* were seen in England, the most together being at Ogston Reservoir (Derbyshire), where one was found on 4th, two the next day and possibly three on 6th, one staying to 7th. No fewer than nine sites recorded **Red-footed Falcons** *Falco tinnunculus*, the east coast of England producing eight birds, while at Lodmoor (Dorset) four different individuals arrived between 8th and 24th. The most unexpected raptor was, however, an **American Kestrel** *F. sparverius* on Fair Isle from 25th to 27th. The only **Crane** *Grus grus* was one at Mid Yell (Shetland) on 8th.

WADERS TO TERNS

A **dowitcher** *Limnodromus* sp. was identified at Staveley Lagoon, Knaresborough (North Yorkshire), on 23rd, and two days later a **Great Snipe** *Gallinago media* was found at Loddon (Norfolk). On 30th a **Spotted Sandpiper** *Tringa macularia* appeared at North Berwick (Lothian). A **Grey Phalarope** *Phalaropus fulicarius*, unusual in spring, was seen at Whalsay (Shetland) on 7th, and the first **Red-necked Phalaropes** *P. lobatus* to return to Fetlar (also Shetland) were seen on 19th (six birds). Two **pratincoles** *Glareola* sp. were noted at Sandwich Bay (Kent) on 15th.

There were more **Long-tailed Skuas** *Stercorarius longicaudus* than one would expect in spring: at Dungeness, singles passed east on 2nd, 10th and 15th; and three were seen on the crossing from Harris to Skye (Highland) on 22nd while there was an unusual record of one found dead at Rhosneigr (Gwynedd) on 16th. Surprisingly, we heard of only one **White-winged Black Tern** *Chlidonias leucopterus*, inland at Stanford Reservoir (Northamptonshire) on 24th. The more uncommon **Whiskered Tern** *C. hybrida* was, however, sighted at Hundred End (Lancashire) on 18th, at Bodymoor Heath (Warwickshire) on 25th, at Hull (Humberside) on 28th and at Lydd (Kent) from 28th until 7th June. A **Gull-billed Tern** *Gelochelidon nilotica* passed Portland (Dorset) on 12th and **Caspian Terns** *Hydroprogne caspia* were seen in Kent at Dover on 6th and Dungeness on 18th.

SWIFTS TO ACCENTORS

Three **Alpine Swifts** *Apus melba* reached Britain, at Exeter (Devon) on 28th, at Fetlar on the following day and at Bodmin Moor (Cornwall), though the date of the last was unfortunately not notified to us. A **Bee-eater** *Merops apiaster* was seen perched on a wire at Portland on 11th, the only one reported to us. More **Hoopoes** *Upupa epops* were reported, 16 from the south coast north to Scotland. Twelve **Wrynecks** *Jynx torquilla* were recorded, with a slight indication of an arrival about 8th; three were seen together in Kent at Hythe on 8th. A **Short-toed Lark** *Calandrella cinerea* arrived on Out Skerries (Shetland) on 15th and remained until 19th, being joined by another on 20th, both of which remained to 21st, and one until 22nd; one stayed on Fair Isle from 25th to 28th, and another was reported at Cley on 28th. A **Crested Lark** *Galerida cristata* was watched at Dungeness on 8th. A **Red-rumped Swallow** *Hirundo daurica* flew north at Dungeness on 9th and one was on St Mary's (Scilly) on 30th and 31st. **Golden Orioles** *Oriolus oriolus* occurred, with reports from twelve places: individuals reached as far north as Shetland, and on Lundy a pair was present at the end of the month and was seen in courtship display. The bird of the month, however, was an **Alpine Accentor** *Prunella collaris* watched at Dungeness on 8th.

THRUSHES TO BUNTINGS

A **Thrush Nightingale** *Luscinia luscinia* put in an appearance on Out Skerries on 19th. A good passage of **Bluethroats** *L. svecica* took place: on Fair Isle the first was on 15th and the species was recorded daily until the end of the month, with a maximum of seven on 25th; Out Skerries recorded 15 between 18th and 25th; and one was found bathing in a garden bird-bath near Newent (Gloucestershire) during the month.

A **Cetti's Warbler** *Cettia cetti* was found at Welwyn Garden City (Hertfordshire) on 6th. **Great Reed Warblers** *Acrocephalus arundinaceus*, largely absent from these islands in recent years, turned up at Trentfield, South Muskham (Nottinghamshire), on 8th, at Chapel St Leonards from 23rd to 6th June, on Bardsey on 28th and 29th (trapped), and one was found freshly dead on Out Skerries on 21st. A **Marsh Warbler** *A. palustris* was found on Fair Isle on 26th. **Melodious Warblers** *Hippolais polyglotta* were identified at Portland on 22nd,

on Whalsay on 28th and on the Calf of Man on 31st (trapped); an unidentified *Hippolais* was seen at Sumburgh (Shetland) on 26th; and **Icterine Warblers** *H. icterina* at Northward Hill (Kent) on 21st (singing male), on Whalsay on 26th and 28th, on Foula (Shetland) on 27th, on Out Skerries on the same date, on Fair Isle on 29th and 30th, with another on 31st, and at Spurn (Humberside) on 30th.

From southern Europe, **Subalpine Warblers** *Sylvia cantillans* came to Hauxley (Northumberland) from 1st to 6th, Orpington (Kent) on 9th, and Tetney Haven (Lincolnshire) on 14th (trapped). A **Sardinian Warbler** *S. melanocephala* occurred at the Casquets Lighthouse (Channel Islands) on 22nd, and a **Bonelli's Warbler** *Phylloscopus bonelli* arrived at Spurn on 30th; another Bonelli's was earlier seen at Fairlight, Hastings (East Sussex), on 23rd. An unusual report concerned a **Dusky Warbler** *P. fuscatus* observed at close range on Lundy during 20th-22nd. A female **Collared Flycatcher** *Ficedula albicollis* was reported on Out Skerries on 25th, while **Red-breasted Flycatchers** *F. parva* were discovered on Fetlar on 28th and 31st.

A **Red-throated Pipit** *Anthus cervinus* appeared at Sandbach (Cheshire) on 1st and **Tawny Pipits** *A. campestris* on Fair Isle on 5th-6th, 17th and 23rd. Four **Woodchat Shrikes** *Lanius senator* were found, at Portland on 10th, at Little Marlow (Buckinghamshire) on 16th, at Dungeness on 28th and in Scilly on 30th. **Serins** *Serinus serinus* turned up at Dungeness on 8th and 10th, and at Portland on 27th, and **Scarlet Rosefinches** *Carpodacus erythrinus* on Fair Isle from 19th to 21st (two) and on 22nd. All the **Rustic Buntings** *Emberiza rustica* this spring were in Shetland: at Bressay on 18th, at Noss Sound on the same date, at Burravoe on 20th, on Fair Isle from 24th to 26th and at Sumburgh on the same dates, and at Sellifirth on 31st May and 1st June. Similarly, **Ortolans** *E. hortulana* were confined to Shetland: on Out Skerries from 16th to 25th; and on Fair Isle where there was one on 12th and 13th, two on 14th and 15th, one on 16th and 17th, and one on 21st.



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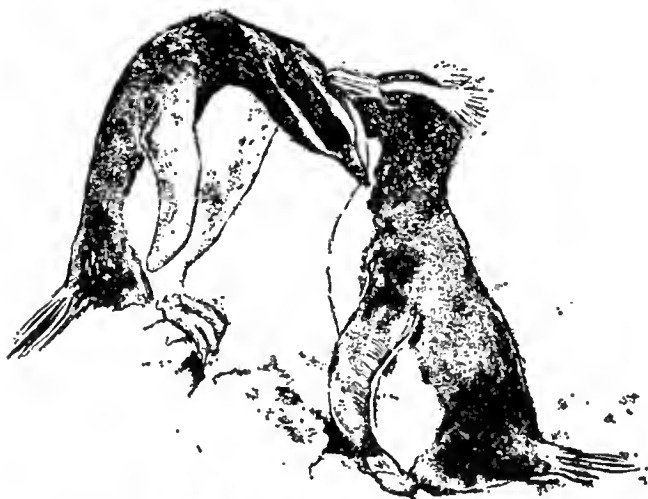
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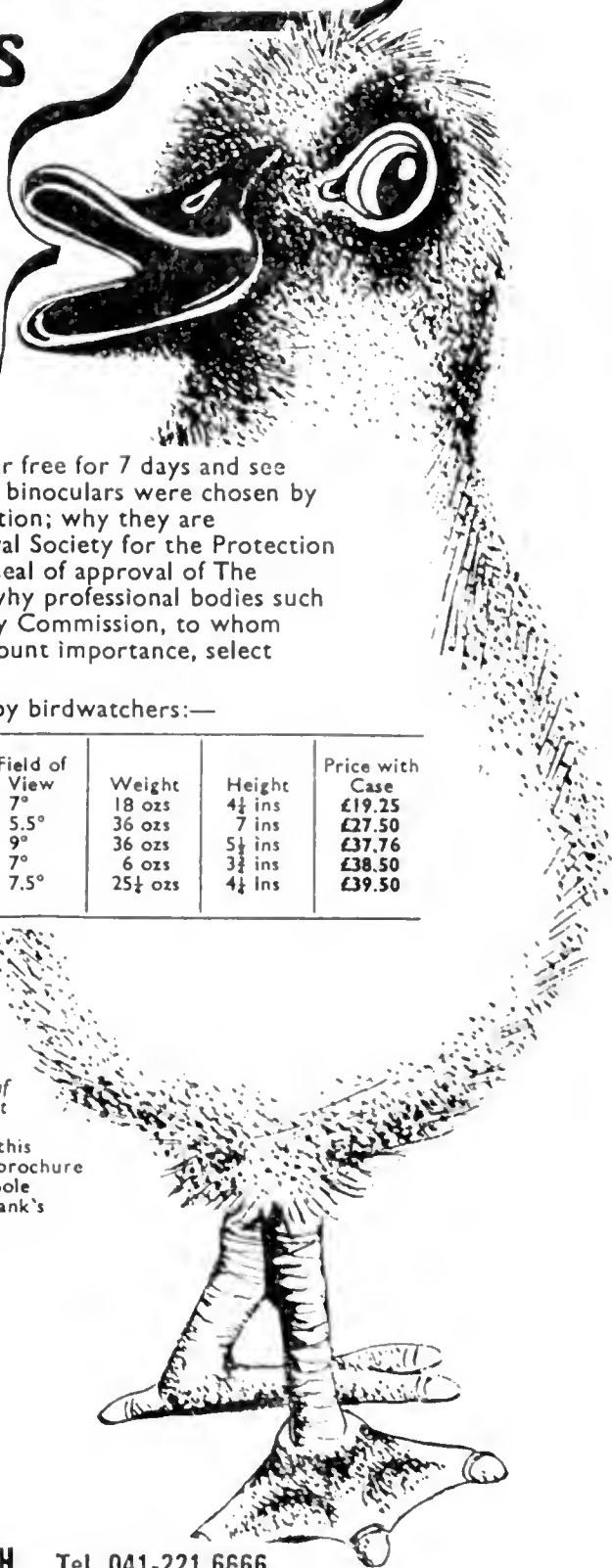
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Front cover: Greenfinch (male) *Carduelis chloris*, Cumbria, March 1974. E. B. and S. Bottomley.

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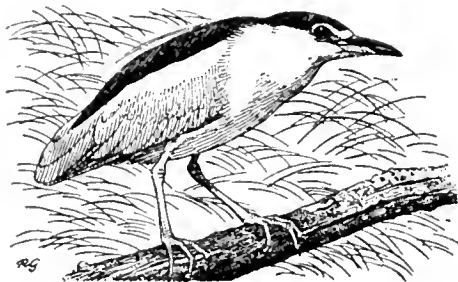
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British Birds

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Distinguishing Great Snipe from Snipe

D. I. M. Wallace

Records of the Great Snipe *Gallinago media* are among the hardest to prove. The Rarities Committee has harped upon this theme and observers unfamiliar with the species and lacking *The Handbook* in their libraries are not given more than a few pointers to the possibilities of its identification. This paper is therefore concerned with restating and clarifying the differences between it and the Snipe *G. gallinago*.

GROUND CHARACTERS

The Great Snipe is the largest of the three species in western Europe, but it does not exceed the Snipe in all standard measurements. It is 5% to 10% longer- and broader-winged and about 10% longer-legged, but 10% shorter-billed and marginally shorter-tailed. It is bulkier, primarily because of its stouter bill, larger head, greater girth and broader wings. The second last difference gives it more of a ball shape on the ground. In the ideal circumstances of Snipe being present for comparison, these differences are obvious.

Subtle but constant plumage differences are not restricted to the usually invisible tail markings and merit full discussion.

General plumage pattern

The Great Snipe is more barred than the Snipe, both above, where the individual feather patterns are very intricate, and below, where the markings are strong and numerous, extending in all plumages

over a wider area. This increased complexity reduces the clarity of the back stripes and the prominence of the white belly, which is virtually invisible in immatures. In addition, its head and neck are heavily spotted with pale marks, giving a mealy appearance. Thus, it often shows a more uniform, less rufous and, because the back stripes are less evident, darker appearance.

Head and bill

The head pattern of the Great Snipe is subtly different from that of the Snipe, with less pronounced striping. This is most evident on the face, where typically the loreal stripe is much thinner and the stripes or patches behind the eye and along the lower cheeks more diffuse. The effect is to give it a more open-faced appearance than the Snipe. The proportionately shorter, stouter bill combines with this feature to heighten the larger- and rounder-headed appearance.

Underparts

Swanberg (1965) rightly chose the strength of the markings on the underparts of the Great Snipe as one of two most important field characters. The presence of many dark spots and small chevrons on the chest, expanding into thick bars on the flanks and tibiae, is diagnostic of the species. These are set off by a buff to white ground colour in adults and by a pale brown to buff ground in immatures. The latter often appear dark underneath in the field and, on a good view, are thus instantly separable from the most heavily marked Snipe. In that species, the belly, lower flanks and tibiae almost always appear strikingly white.

Wings

Swanberg did not stress the importance of the pattern of the folded wing in the identification of the Great Snipe, though his photographs show it well. It has, however, become accepted as a much more useful character than the white tail corners, which are difficult to see. At all ages, this species shows strong barring or chequering on the coverts, made up of rather regular, transverse lines of white, black and brown (with the first colour most obvious), which form a clear panel on the mid wing. Also present is a marked 'speculum', almost completely black in adults and little-marked dark brown in immatures, bordered above by the white tips to the greater coverts and below by a wide, white trailing edge to the secondaries (fading on the inner primaries). The Snipe can show irregular white bars on the coverts, but usually the marks are in the form of scallops and spots. Importantly, it never shows any obvious speculum, because the secondaries are less densely coloured and more irregularly marked, and because both covert tips and trailing edges are duller. The latter are nevertheless still striking, particularly in flight.

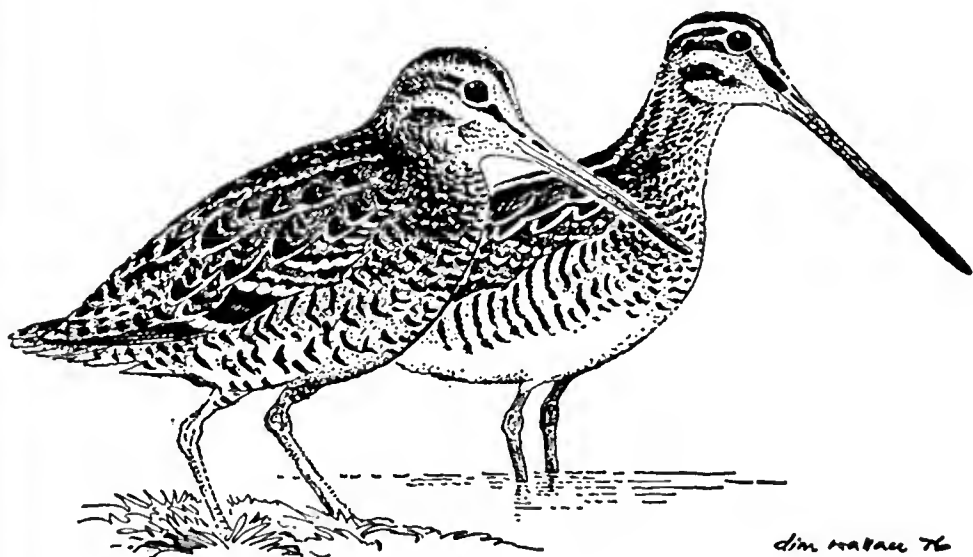


Fig. 1. Immature snipes on ground. Left, Great Snipe *Gallinago media*: stouter bill, rounder head and build, and dusky underparts with complete barring. Right, Snipe *G. gallinago*: stronger stripes and white belly

Bare parts

The bill of the Great Snipe can look paler and more uniform in tone than that of the Snipe, often showing a yellowish or greenish tinge at the base. The legs may also appear paler.

Given the short odds that any snipe may fly at any moment, it is vital to concentrate on underparts, wing and face pattern first. Fig. 1 illustrates these aspects.

FLIGHT CHARACTERS

Not every large, silent snipe that flies off slowly and silently is a Great Snipe. Large, tired Snipe of the nominate race and the vagrant American race *G. g. delicata*, which is shorter-billed and more barred below than our bird and may well cross the Atlantic more than its few records suggest, are a constant source of confusion. While many of the subtle marks discussed above will not be apparent, however, the Great Snipe can be identified in flight.

Ground characters also visible in flight

The greater bulk of the Great Snipe and its stronger barring on the underparts, restricted pale belly and, above all, the pale chequered mid-wing panel and speculum can all be evident. The last two features, together with a dark carpal patch, are particularly striking on adults. In this respect, it is puzzling to find that King *et al.* (1975) effectively disputed the prominence of the speculum by giving the

lack of a white trailing edge to the secondaries as a clear distinguishing feature from the Snipe. I can find no justification for this statement in other literature or skins, though it is a fact that the wing characters of the Great Snipe have not attracted the attention they deserve. Although they were acutely portrayed over 35 years ago by J. C. Harrison in *The Handbook* (plate 114), only a few incomplete references to them have appeared in the files of the Rarities Committee. This may simply be another example of the screening that has obscured other quite obvious field characters, such as the dark saddle of the immature White-winged Black Tern *Chlidonias leucopterus* 'discovered' as recently as 1959 (Williamson 1960), but the chance remains that some Great Snipe have less patterned wings. I have seen one colour photograph of an adult with much duller wings than any of Swanberg's birds and, in a recent skin examination, I found a June adult with a folded wing appearance that I judged would have been identical with a well marked Snipe in the field, while several other specimens were noticeably duller than usual.

Axillaries and underwings

In the Great Snipe, these are as strongly barred as the underparts. Only in *G. g. delicata* and a few *G. g. gallinago* are such pronounced markings present. This is an important mark in the case of dark-tailed, immature Great Snipe, but it is difficult to observe with certainty.

Tail

Adult Great Snipe display brilliant white corners (almost the outer thirds) to their tails. Immatures that have not completed the first moult do not, and the restricted white tips to their outer tail feathers are similar to those of Snipe at any age. Swanberg (1965) chose the white tail corners as one of two most important field characters of adult Great Snipe, but the fact is that, except when braking just before landing, snipes rarely oblige by fanning their tails. It is not easy to observe this character in either species, but failure to see it does not necessarily prevent identification. As may now be apparent, there are other marks worth looking for.

Flight action and silhouette

There is complete unanimity about the heavier appearance and the slower, straighter, level flight of the Great Snipe. Its resemblance to that of a small Woodcock *Scolopax rusticola* bears repeating. Of nearly a hundred Great Snipe that I have flushed in Europe and West and East Africa, not one has ever given the impression of the frantic, terrified escape flight that so characterises the departure of a fit Snipe. I have, however, seen a few, probably tired, Snipe go off in a manner that suggested Great Snipe, and such birds must

constantly be borne in mind. If faced with one, observers should concentrate on structure and plumage pattern. The broader wings of the Great Snipe and the shorter bill length are evident in a good view; bill carriage may also differ. Some Great Snipe appear to carry their bills much nearer to the horizontal than do Snipe: Swanberg (1965) estimated the angle of depression in the Great Snipe to be 15% to 20%.

Seeing a large snipe slowly flying away, it is vital to concentrate on the wing pattern. If the bird comes round or lands, the pattern of the underparts and tail are the most important features to look for. Fig. 2 shows the flight appearance of both snipes and of the Woodcock.

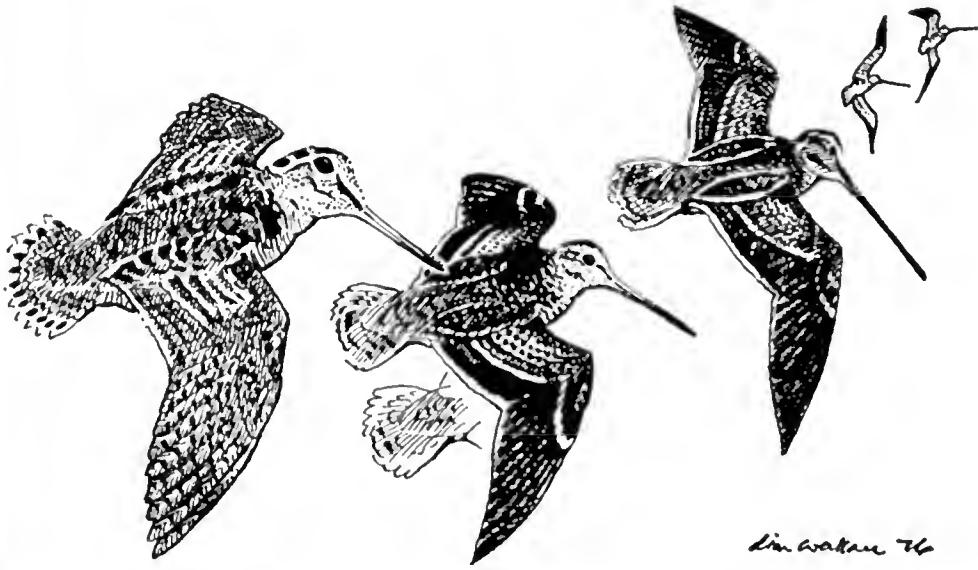


Fig. 2. Woodcock *Scolopax rusticola*, and snipes in flight. Left, Woodcock with characteristic vermiculated plumage and lack of wing pattern. Centre, Great Snipe *G. media* with definite wing pattern (see text) and Woodcock-like set; note tail of immature resembles that of Snipe *G. gallinago* at all ages, but that of adult (inset below) has outer thirds virtually white. Right, Snipe, with obvious back stripes, indistinct wing pattern and (inset above) characteristic escape flight

HABITAT AND BEHAVIOUR

In its breeding and wintering areas, the Great Snipe inhabits much drier ground than does the Snipe. Only in East Africa in a dry season have I seen it regularly enter open water. It does not shun marshes, however, and, since the Snipe frequently occurs in dry habitats, such as bracken and long grass, there is a wide overlap in habitat. The Great Snipe, however, has a marked liking for tussock grass and heather, in which it commonly roosts, sitting tight all day. It is essentially a nocturnal species in a normal sun cycle: in West Africa, Great Snipe flush only on direct disturbance.

As just implied, many Great Snipe must escape notice by hidden immobility, and it is rare to see migrants moving about. When they do, their gait appears less free than that of Snipe: they tend to shuffle about, hunched on bent legs and taking food from the surface as well as probing for it below ground. H. Seebohm, quoted in *The Handbook*, saw them as 'very comical'; to my eyes they look 'a little stupid', in a way that the Snipe never does. Great Snipe have a reputation for solitariness, but they are in fact gregarious in the breeding season, with males attending communal display grounds, and they occur in scattered flocks in Africa in winter.

CALLS

For a bird that makes all sorts of extraordinary noises in breeding display, the Great Snipe is exceptionally silent on migration and in winter. Of 27 records in the files of the Rarities Committee, 19 individuals always rose without calling. The other eight called at least once, the noise being described as a quiet, gruff or guttural croak, grunt or cough; the only transcription described this as a deep 'heert'. One individual additionally gave a low, deep, faint 'tswick', reminiscent of a quiet 'titipp' which I heard once from one flushed at dusk. Thus, 70% of the Great Snipe recorded in Britain during 1958-75 were silent when flushed (often repeatedly) and 30% uttered a croaking call quite unlike that of the Snipe (but some called only once, even though they were flushed on more than one occasion). It may be significant, however, that, on four occasions, special note was made of wing-noise as the bird rose: a feature not known to be a character of the species and, therefore, perhaps unrecorded in other instances. The voice of the Snipe is too well known to warrant a review here.

GREAT SNIPE IN BRITAIN AND IRELAND

The British Ornithologists' Union (1971) described the Great Snipe as a scarce and decreasing visitor, with older records mainly in autumn, but more recent ones in that season and in winter. During 1958-75, there were at least 35 records in Britain and Ireland. Most were in autumn on northern Scottish isles and down the eastern half of England, with a mean arrival date of 8th September clearly reflecting the late August to mid-September withdrawal from Scandinavian breeding grounds (Swanberg 1965). There is a hint of onward passage through Britain in four October records (mean date 11th) in Scilly, but ten later occurrences from mid-November to February, with seven on or below the axis of the Severn and the Wash, suggest a small wintering population. As Sharrock and Sharrock (1976) have pointed out, however, at least 81% have been seen on only a single date and there has been but one

record of a long stay in the past 18 years (December-February 1962/63 in Buckinghamshire). Nevertheless, five widely scattered spring records hint at the withdrawal of these birds, rather than passage, since the lack of any recent late May or early June records is significant when the increasingly regular occurrences at that time of sympatric species, such as the Broad-billed Sandpiper *Limicola falcinellus*, are considered. It is by no means certain that there has been any real change in the status of Great Snipe in Britain and Ireland, however, since the pattern indicated above is present in the older records, even in such a landlocked county as Hertfordshire (Sage 1959). It is likely that changes in the shooting behaviour of collectors and wildfowlers have played as big a part in the Great Snipe's apparent decline as has the reduction of the European population (Voous 1960) or the difficulty of field identification.

ACKNOWLEDGEMENTS

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SUMMARY

Previous criteria on the differentiation of the Great Snipe *Gallinago media* and Snipe *G. gallinago* are restated, along with the product of recent researches in field identification. The best indicators of the former species are its more striking wing pattern, which usually includes a marked speculum, its heavily barred underparts and its Woodcock-like flight. It usually rises silently, but sometimes utters a guttural croak when flushed. Essential references are *The Handbook* and Swanberg (1965); the latter contains a series of most informative photographs.

The Great Snipe appears to have become scarcer in recent years, but there is no evidence of a real change in its occurrence pattern in Britain and Ireland.

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Sedge Warbler migration and reed aphids

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INTRODUCTION

Sedge Warblers *Acrocephalus schoenobaenus* breed in western Eurasia and winter in Africa south of the Sahara (Vaurie 1959, Moreau 1972). They occur in marshland especially on migration and in winter, when they are less catholic in their habitats than in summer (Lack 1971). Recent ringing recoveries reported to the British Trust for Ornithology, from Senegal (three), Liberia (one), Sierra Leone (one) and Ghana (one), suggest that British breeders winter in West Africa, though they have not been widely reported there (Bannerman 1953, Mackworth-Praed and Grant 1955). Both the spring and the autumn migrations require long flights over the Sahara (Moreau 1961); like other long-distance migrants, Sedge Warblers prepare for these flights by accumulating large deposits of body fat (Gladwin 1963, Fry *et al.* 1970, Sitters 1972). The extent of fat accumulated by them in southern England in autumn led Gladwin to suggest the possibility of a single direct flight to the winter quarters, a feat comparable to that of the Blackpoll Warbler *Dendroica striata* crossing from New England to the West Indies or Venezuela (Nisbet *et al.* 1963). Until now, however, there have been no critical studies of the scale of weight gains or the feeding conditions that make them possible.

This paper reports the results of studies extending over three autumns (1973-75) at Radipole Lake, Dorset. Few Sedge Warblers breed there, but many from north-west Britain pause on migration; intensive ringing has been carried out since 1972 (Pepler and Pepler 1973, Pepler 1976) and observations have been made simultaneously on feeding ecology and the availability of food. Aphids have received special study, as they appear to form an important part of the diet (Green and Bibby 1973).

THE STUDY AREA AND METHODS

Radipole Lake is situated in Weymouth, Dorset, and is about 74 ha in total area. It is protected from the sea by sluices and comprises about 20 ha of fresh water, surrounded by dense fringes of reeds *Phragmites australis* (about 38 ha). Especially away from the water and to the northern end of the lake, the reeds are thinner and interspersed with various herbs and bushes (about 16 ha). This study was carried out in an area of about 15 ha towards the southern end of the lake.

In each of the three autumns, trapping continued from late July to the third week of September. Standard netting sites were used throughout, with a small number of others used occasionally. The sites were chosen in a representative range of habitats, but the majority of Sedge Warblers were caught in the pure reed stands. Nets were always open from dawn to the middle of the day and again during some evenings, unless weather conditions were unsuitable. Detailed records were kept of these variations of effort. All Sedge Warblers were ringed (or recorded as retraps), aged as adult or first-year, examined for fat and weighed. Weights were taken to the nearest 0.1 g on a Pesola spring balance, which was regularly tested with standard weights.

Observations on feeding Sedge Warblers were conducted by CJB and REG in the autumn of 1973 and briefly in the other two years. Standard methods of counting aphids were devised and these were continued by members of the ringing team in the later two years.

RESULTS FROM RINGING

First-year Sedge Warblers alone were included in the analysis, because they considerably outnumbered the adults caught on passage. The ringing and retrap data were assembled into 'capture calendars' to show the dates of handling and the weights of all individuals caught on more than one day (instances of two or more captures in one day were not included). It was apparent from these tables that some individuals gained substantially in weight during their stay, while others changed within the normal range of diurnal variation. Those that did not gain weight appeared to be more readily caught than those that did; thus, some individuals were caught frequently at normal weights, while others were caught once or twice at such weights and then evaded capture for many days before reappearing at substantially heavier weights. It was clearly important to test whether the increasing weight of a Sedge Warbler might reduce its chance of being caught and, if so, to compensate accordingly.

The retrap histories of all Sedge Warblers caught more than once were separated; for each day, other than the first or last, it was noted whether or not the individual was recaptured. Individuals were assigned to a one-gram weight category for each day, either by taking the recorded weight or by linear interpolation between the previous and subsequent captures if the bird had not been caught in the interim. Thus, the chance of a Sedge Warbler at a given weight being caught on a particular day was calculated for a range of weights for each of the three separate years. No differences were found between the years, so the combined results are presented

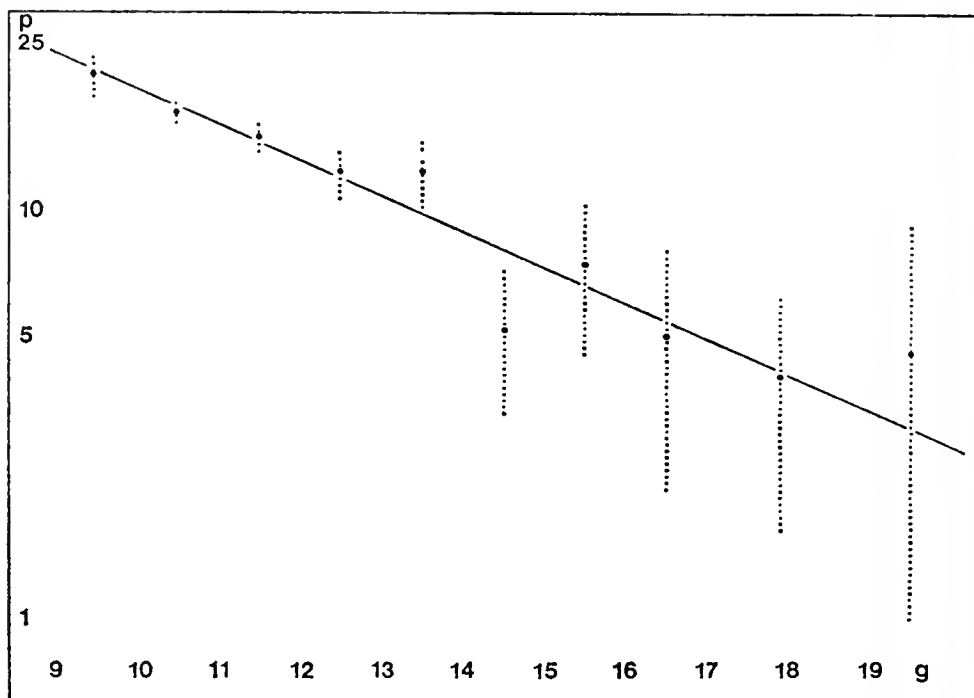


Fig. 1. Capture probabilities (% per day) plotted in relation to weight (in grams) of Sedge Warblers *Acrocephalus schoenobaenus* at Radipole Lake, Dorset. 1973-75 data are combined. Dotted lines show one standard error. The regression line was fitted by eye. Heavy individuals are less likely to be caught than those of normal weight

in fig. 1. The higher weights, which were rarer, are grouped to produce samples of an adequate size.

Clearly, the weight of an individual markedly influenced its chances of capture on any one day, falling from about 20% at 9-10 g to 10% by 13 g, and less than 5% if it weighed more than 16 g. Thus, any direct analysis would underestimate the number of birds which gained appreciable amounts of weight, because they would be less likely to be caught than those that did not. Subsequent analysis makes allowance for the weight-related capture probabilities taken from the regression line fitted to fig. 1.

WEIGHT GAINS

Mean weights, corrected for the weight-related capture probabilities, were calculated for each day after initial ringing, and then grouped where necessary to produce adequate sample sizes. The results for the three years are shown separately in fig. 2. The year 1974 differed markedly from the other two, with a rate of weight gain of only 0.05 g per day, compared with 0.40 g per day for 1973 and 0.55 g per day for 1975. The statistical inferences from these findings are presented in the caption to fig. 2.

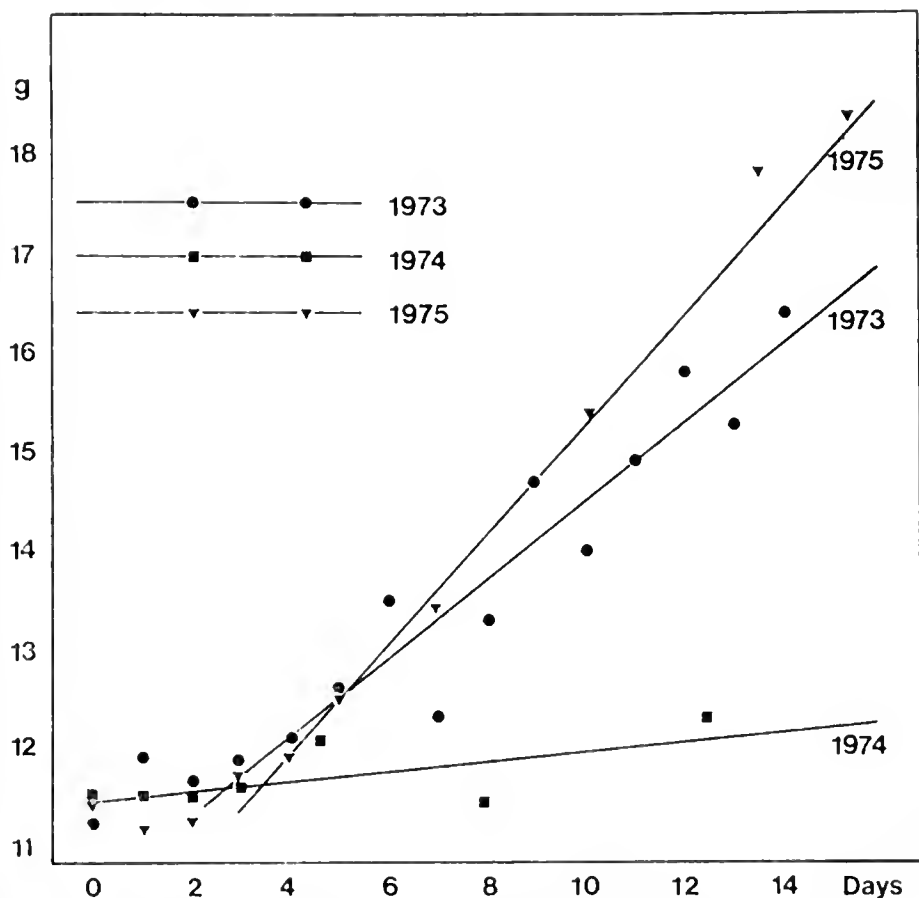


Fig. 2. Mean weight (in grams) of Sedge Warblers *Acrocephalus schoenobaenus* at Radipole Lake, Dorset, plotted in relation to interval in days since ringing. Data corrected by weight-related capture probabilities (see text). Weight gains: 1973, 0.40 ± 0.04 g per day; 1974, 0.05 ± 0.03 g per day; 1975, 0.55 ± 0.07 g per day. Rate in 1974 not significantly greater than 0. 1973 and 1975 significantly ($p < 0.001$) greater than 1974 and 0. Difference between 1973 and 1975 not significant ($0.1 > p > 0.05$)

The derivation of these data depends on the validity of the weight-related capture probability corrections, so an alternative method was used for comparison. Rates of change of weight of individuals between consecutive captures were calculated. Only those caught at least three days apart were included, to reduce the effect of diurnal weight changes, which would probably be an overriding influence if smaller intervals were used. Birds weighing less than 13 g were also excluded to eliminate individuals which had not started to gain weight (13 g was taken arbitrarily as the minimum weight above 'normal'). This latter condition made it impossible to consider 1974, when so few birds gained weight that there was an inadequate sample of only five. There was little suggestion of rates of weight gain varying seasonally, so the data for the complete 1973

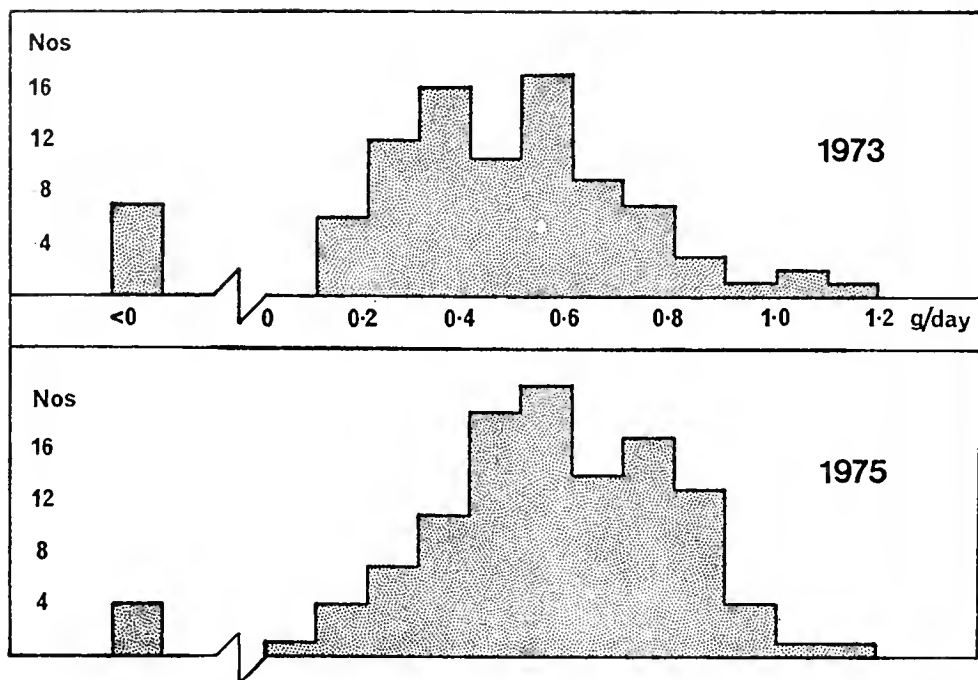


Fig. 3. Numbers of Sedge Warblers *Acrocephalus schoenobaenus* caught at Radipole Lake, Dorset, in 1973 and in 1975, showing various weight gains (grams per day). Individuals have been included only if they were caught at least three days apart and with at least one weighing above 13 g. 1974 data are excluded because of lack of eligible records. Weight gains: 1973, 0.49 ± 0.02 g per day; 1975, 0.58 ± 0.02 g per day (negative values excluded). 1975 significantly greater than 1973 ($p < 0.01$). Differences from regression coefficients (fig. 2) not significant for either year

and 1975 seasons are both presented in fig. 3. In 1975, the mean rate of weight gain was 0.58 g per day—significantly more than the 0.49 g per day found in 1973 ($p < 0.01$). In both years, a few actually lost weight, while the fastest gained over 1.0 g per day; these extremes were most frequent over short periods of time, when diurnal changes could have had a marked effect. The mean rates of weight gain agree closely with those found by the previous method, thus substantiating the validity of applying the correction for weight-related capture probability.

DURATION OF STAY

The number of ringed Sedge Warblers present on each day after first capture was estimated, using the weight-related capture probabilities on the recorded retraps (i.e. the same initial calculation as used to derive fig. 2). All except those ringed on the last day of the season could have been caught one day later, but decreasing numbers were available to be caught over longer intervals of time; appropriate corrections were, therefore, made to each day's data. From these figures, the numbers leaving each night after ringing

were calculated by subtraction (fig. 4). It should be noted that not all of those ringed will have arrived in the previous night; some will have evaded capture for one or more days, but, on the other hand, some of those that stayed for only a short time will have avoided capture altogether. In any year, the proportion of those present which left each night appeared to be roughly constant for the first few nights; fig. 4 should, therefore, give a good estimation of the distribution of durations of stay of individual birds.

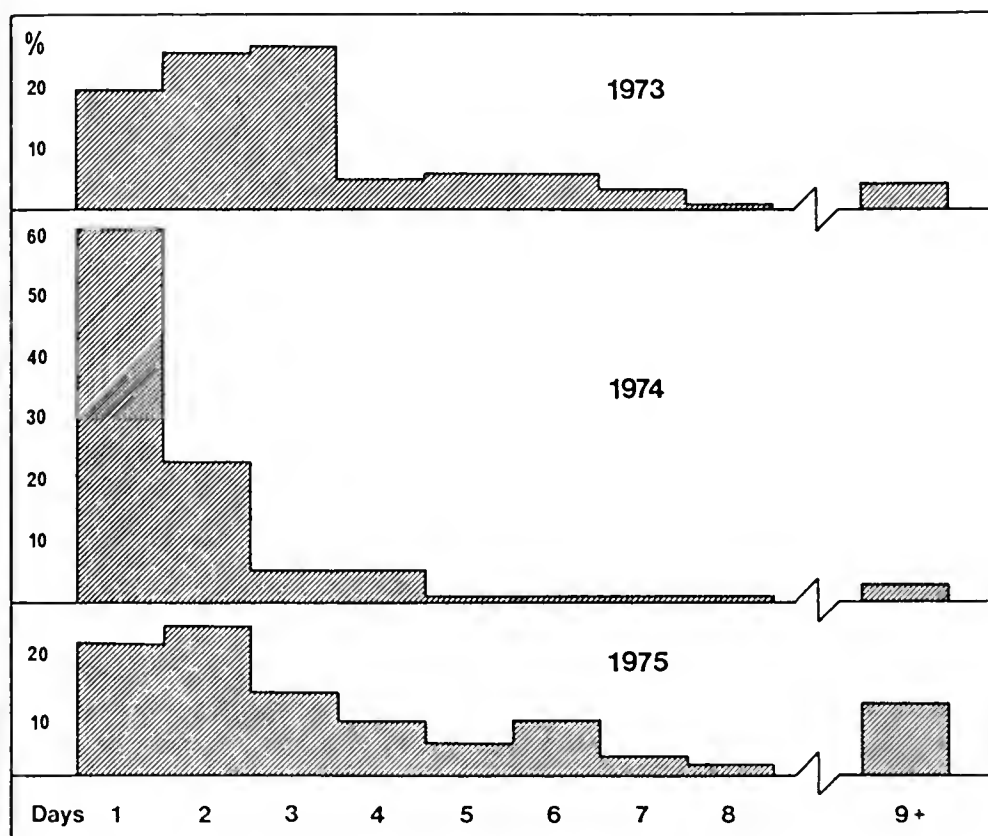


Fig. 4. Estimated durations of stay of Sedge Warblers *Acrocephalus schoenobaenus* at Radipole Lake, Dorset: percentages plotted in relation to length of stay in days

Again, a clear difference between years emerged. In 1974, 84% stayed two days or less, compared with 46% in both 1973 and 1975. Thus, not only was there no significant gain of weight in 1974, but individuals did not stay so long as in the other two years, which were broadly similar to each other in these respects. Using the rates of weight gain derived in the previous section, the durations of stay required to gain 1.0 g and 5.0 g were calculated for each year and, thus, the proportions of birds reaching these weight gain levels were estimated. These figures are presented in table 1, which shows that,

even in the better years, the majority did not gain much weight: only 2.0% in 1973 and 8.0% in 1975 gained more than 5.0 g.

Table 1. Percentages of Sedge Warblers *Acrocephalus schoenobaenus* estimated to have made various weight gains at Radipole Lake, Dorset

	Weight gain		
	≤ 1.0 g	1.1-5.0 g	5.1-10.0 g
1973	54	44	2
1974	100	0	0
1975	40	52	8

SEASONAL VARIATIONS OF PASSAGE AND WEIGHTS

There were not enough data to investigate thoroughly the seasonal variations of weight changes and duration of stay, though, as reported earlier, rates of weight gain were sufficiently variable to mask any seasonal changes that might have occurred. As an alternative method of assessment, the weight distribution of all Sedge Warblers caught in standard ten-day periods were extracted, corrected with the weight-related capture probabilities and adjusted for the number of netting days in each period (some days were lost because of bad weather or at the start and end of the season). These distributions represent the number of bird-days at each weight for each period (fig. 5); they were arbitrarily divided into three weight categories (see caption).

The three years were rather similar in the timing of passage, with peak numbers present in August (67%, 63% and 67% between 4th August and 2nd September in 1973, 1974 and 1975 respectively). Individuals at or below 11.0 g were probably largely new arrivals. With the exception of notable arrivals during 14th-23rd August 1975, their numbers were remarkably uniform throughout the first

Table 2. Percentages of total bird-days of Sedge Warblers *Acrocephalus schoenobaenus* in three weight categories, durations of stay and total numbers involved each year at Radipole Lake, Dorset

	1973	1974	1975
Heavy (> 13.0 g)	14.8	11.0	16.3
Average (11.1-13.0 g)	50.3	49.6	41.1
Light (≤ 11.0 g)	34.9	39.4	42.6
Total bird-days (a)	26,340	19,370	27,050
Mean stay in days (b)	3.33	1.96	4.13
Total birds (a/b)	7,910	9,880	6,550

40 days of the season in each year. The numbers of heavy birds (those over 13.0 g) tended to be largest in the later periods of peak presence, but their proportion in the population was higher at the end of the passage.

In table 2, the proportions of bird-days in each weight category are summarised for the three years. This table also shows the total

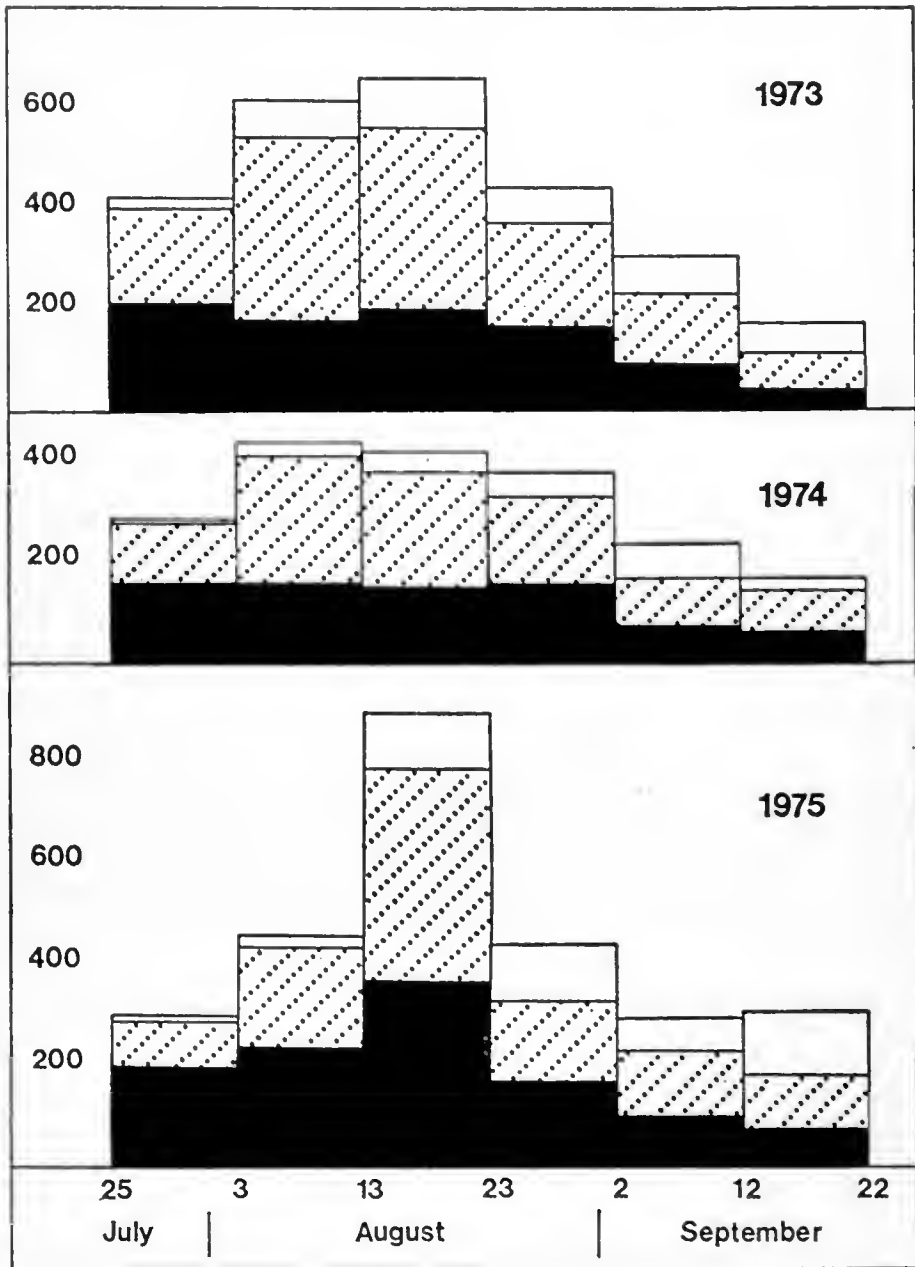


Fig. 5. Estimated numbers of Sedge Warblers *Acrocephalus schoenobaenus* present at Radipole Lake, Dorset, in each of three weight groups in standard 10-day periods in 1973, 1974 and 1975. Black = 'light' (≤ 11.0 g); hatched = 'average' (11.1-13.0 g); white = 'heavy' (≥ 13.1 g)

numbers of bird-days and individuals estimated to have been involved in each year. The year 1974 again differed from the other two, with a higher proportion of low weights and a lower proportion of high ones than in 1973 or 1975. The total number of bird-days was also much lower than in the other two years. On the other hand, by allowing for the average duration of stay, it appears that more individuals passed through the area in 1974 than in 1973 or 1975. Without knowing about changes in numbers of Sedge Warblers in the country as a whole, it is not possible to tell to what extent these variations were caused by local factors at Radipole. Clues were, however, collected to account for some of the differences between the years.

OBSERVATIONS ON FOOD

Direct observations by CJB and REG in August 1973 on the places and rates of feeding showed that Sedge Warblers were largely confined to reeds and appeared to show a preference for areas where these were dense and uniform, usually in standing water or on very muddy ground. Although the drier zones supported thinner growths of reeds interspersed with a variety of herbaceous plants, Sedge Warblers were not commonly seen in these areas; neither were they seen to feed in small willows *Salix spp*, buddleia *Buddleja davidii* and hawthorn *Crataegus monogyna*, which were locally abundant and much favoured by Reed Warblers *A. scirpaceus*. These observed differences of feeding habitat were supported by the catching results, with Sedge Warblers being most abundant in the nets set in the wettest areas of the reed bed, but Reed Warblers commonly being caught in the scrubby areas.

Table 3 records the results of direct observations of feeding made in the preferred stands of reeds growing in water. The Sedge Warblers fed from all parts of the plant, with roughly the same amount of presumed prey captures (pecks) from the flowers, leaves and base areas, the last of which included the lower, dead leaves. Pecking rates were often very high: sometimes as many as ten pecks would be made at a rate of 2 per second from a single stance. General feeding rates shown in the table were lower, partly because of the time spent moving, but also because of the precarious reaching

Table 3. Feeding places and feeding success of juvenile Sedge Warblers *Acrocephalus schoenobaenus* in reeds, based on 1,092 seconds of observation at Radipole Lake, Dorset, in August 1973

	Flowers	Leaves	Bases
% time in area	16.8	47.2	36.0
Peck rates per sec.	0.52	0.23	0.36
% of prey captures	29.9	37.7	32.4

required to peck at leaves and flowers while clinging to a nearby stem.

Inspection revealed that the potential food in appropriate places consisted almost entirely of the plum-reed aphid *Hyalopterus pruni*, which frequently occurred in hundreds per leaf or flower. Syrphid larvae were occasionally found, but the aphids were the only insects numerous enough to account for the observed feeding rates. Aphids were detected in Sedge Warbler faeces by their soluble coloration, though the birds were also found to have eaten small flies and beetles. Quantification of the number of aphids in the faecal remains was not possible, but direct observations had already confirmed their apparent importance. Further observations were, therefore, made on the distribution and abundance of aphids, by selecting five stems at random within a sampling site and recording the numbers in the flower and then on each leaf descending the stem. Numbers were estimated on a logarithmic scale of abundance: 1-10 = 1, 11-100 = 2, 101-1,000 = 3, and so on. Mean numbers per stem or leaf could then be estimated by assigning to each abundance category its arithmetic mean value (e.g. 5, 55, 550). Order 4 (1,001-10,000) was assigned a value of 2,000, since the maximum number occupying a leaf appeared never to exceed 4,000.

An extensive survey was made in August 1973 to investigate the abundance of aphids on reeds growing in different conditions and at varying stages of development (table 4). The highest numbers were found on plants growing in standing water, with progressively fewer in drier areas. The state of development was also found to be important, with heaviest infestations before the stem had matured and flowered. This relationship between the wetness of the site and the abundance of the aphids was also found elsewhere in southern England, though it was reversed at Christchurch Harbour (Dorset), where the reeds were in brackish water.

Subsequent counts of aphids were made mostly on the favoured areas in standing water, but, even there, large variations in abundance were found over small distances. Counts were made at 5-metre intervals along a transect of 100 metres in an area with standing water, taking five stems at each point. This showed up to

Table 4. Mean numbers of aphids per plant on various substrates at Radipole Lake, Dorset, in August 1973. Figures are totals on leaves and (in parentheses) on flowers, respectively

	Water	Mud	Damp ground	Dry ground
No flower	1689 (-)	274 (-)	1 (-)	0 (-)
Emerging flower	760 (216)	47 (88)	3 (9)	0 (3)
Open flower	212 (133)	54 (34)	2 (5)	0 (1)

20-fold variation, much of which was due to the stage of development of the stems. Thus, in the course of the passage of Sedge Warblers, different areas reached their peak suitability for aphids at slightly different times. This was found to influence the numbers of birds caught in individual nets, which tended to reach a peak at the same time as the aphids in the adjacent reeds. Local variation makes the time of peak aphid abundance difficult to determine, but it was estimated to occur at about 15th-25th August in 1973 and 1975, much the same time as the peak utilisation of the site by Sedge Warblers (fig. 5). Numbers built up steadily over a period of two to three weeks from late July, but the decline from the peak seemed to be more rapid, with numbers much reduced after the first week of September.

Table 5. Differences in aphid abundance by year at Radipole Lake, Dorset. Percentage of leaves with different orders of abundance (see text)

	Sample size	Order of aphid abundance					Mean no. per leaf
		0	1	2	3	4	
1973	1385	38.1	30.7	24.3	6.9	0	53
1974	1174	99.0	0.8	0.2	0	0	0.1
1975	422	45.0	14.2	17.6	15.4	7.8	252

Differences between the three years were compared with counts made at a selection of random points in the preferred wet areas over the period 15th August to 5th September (table 5). The year 1974 was evidently exceptionally bad for the aphids, which were very difficult to find at all and did not occur in any large concentrations. This coincided with the lack of weight gains among Sedge Warblers and the very short periods of stay already noted. The year 1975 produced the most spectacular aphid plagues seen during the study, and 1973 had fewer. Sedge Warblers clearly reacted to these conditions: they gained weight faster and stayed longer in the best year, 1975.

DISCUSSION

The evidence suggests a strong association between the proportion of Sedge Warblers which break their autumn migration at Radipole to accumulate appreciable amounts of fat and the abundance of aphids on the reeds. Other factors are also likely to be involved. Sitters (1972) reported year-to-year variations in the proportions of Sedge Warblers attaining high weights at Slapton Ley (Devon) and suggested that the occurrence of suitable weather conditions for long range migration might be important. No supporting evidence was presented, but this idea obviously merits investigation.

Even when feeding conditions appear to be good, most Sedge

Warblers leave within a few days and only small numbers gain much weight. Gladwin (1963) assumed that, because some birds were known to have put on a substantial quantity of fat at Rye Meads, Hertfordshire, most did so. No other authors have estimated the proportions of birds that get heavy at different sites. In recent years, considerable attention has been focused on Sedge Warblers by ringers taking part in the BTO's *Acrocephalus* enquiry. We have studied informal reports produced by ringing groups and talked to most of the major ringers of Sedge Warblers in Britain; it appears that heavy Sedge Warblers can be found at most sites in autumn, but the proportions reported in this paper seem to be confined to areas close to the south coast between Cornwall and Kent. The situation is confused by the fact that ringed individuals have been found to move both east and west along the south coast over short periods of time. These birds are possibly looking for suitable feeding areas before leaving the country. Ringers have searched in recent years for suitable places to catch large numbers of Sedge Warblers, but it is evident that the number of such sites is very small.

The inevitable conclusion is that some Sedge Warblers leave Britain in autumn at considerable weights, but that a large proportion, if not the majority, must cross into France at weights within the normal range. There are many autumn recoveries of British-ringed Sedge Warblers in north-west France, but few south of about 45° N in southern France or Iberia (Spenceer 1971). This suggests that north-west France may contain important areas for pre-migratory fattening. Analysis of ringing recoveries suggests that the apparent season of passage is progressively later at more northern latitudes across France and southern England. This paradox may be explained by the earlier senescence of reeds in hotter southern climes, which CJB and REG observed during a tour of western France in autumn 1975. If these suggestions are valid, then the later the season gets, the longer is the single flight required to take a British Sedge Warbler out of Europe. The observation that heavy individuals are proportionately more numerous towards the end of the passage may reflect this, though of course it also reflects the smaller number of new arrivals at the end of the season. The fact that adult Sedge Warblers pass through Radipole about two weeks earlier than juveniles (Pepler 1976) also suggests that early migration may be optimal.

Comparison between the Sedge Warbler and the closely related Reed Warbler is revealing. It appears that Reed Warblers do not gain weight in autumn to the same extent (unpublished Radipole data and discussions with other ringers) and autumn ringing recoveries are few in northern France, but are numerous in Iberia (Spenceer 1971), though many of the latter result from birds killed

by man. Reed Warblers feed largely by catching active insects, especially flies (Diptera) in bushes (Green and Davies 1972, Davies and Green 1976). Further, they are less attached to marshy areas than Sedge Warblers, especially on migration and in winter quarters. Thus, Reed Warblers appear to have good prospects of finding places to feed as far south as the Mediterranean, and there is less indication of individuals overflying southern Europe, as Sedge Warblers appear to do.

If Sedge Warblers were to travel non-stop from southern England to sub-Saharan West Africa, this would entail a flight of about 3,800 km. Pennycuik (1969) suggested 35 km per hour as an approximate flight speed, but Moreau (1961) described a tailwind of some 16 km per hour blowing for 60% of the time across the Sahara at this season. Thus, a ground speed of 40-50 km per hour seems reasonable, which suggests a flight time of 76-95 hours. Using Nisbet's (1967) results, the departure weights to achieve such flights would be between 17.5 g and 15.7 g, equivalent to between about 7.2 g and 5.4 g of fat respectively, assuming the fat-free weight of a Sedge Warbler to be 10.3 g (Fry *et al.* 1970). Hence, even in the best year, only a small proportion of Sedge Warblers achieved sufficient weights to take them non-stop from Radipole Lake to sub-Saharan winter quarters, even allowing for the most favourable weather conditions on the way.

The association of the numbers of Sedge Warblers staying for more than a few days at Radipole Lake and their rates of weight gain with aphid abundance indicates that plentiful and concentrated food supplies are important for birds depositing pre-migratory fat. Sedge Warblers storing fat at the rates found in this study were increasing their energy reserves by about 4.7 kilocalories per day. Their daily energy expenditure for free existence can be estimated, from the results of Lasiewski and Dawson (1967) and Holmes and Sturges (1973), at about 12 kilocalories. Thus, pre-migratory fattening may require an increase in daily energy intake of about 40%. Achieving such an increase would be particularly difficult if food items were dispersed, and increased food intake required the expenditure of much additional energy in foraging. Hence, it is not surprising that birds use concentrated food sources when preparing for a long migration. Some primarily insectivorous species feed on berries when depositing fat (Fry *et al.* 1970, Ferns 1975). Both Reed and Sedge Warblers, as well as other birds, are known to exploit dense swarms of midges when preparing for spring migration in Africa (Fry *et al.* 1970, Fogden 1972). The rates of weight gain found in the good aphid years at Radipole (about 0.5 g per day) were high compared with Lake Chad in spring, where Sedge Warblers largely ate midges, and average weight gains were 0.2 g per day. White-

throats *Sylvia communis* at Lake Chad ate the berries of the saltbush *Salvadora persica* and average weight gains were 0.6 g per day. Thus, reed aphids appear to be a desirable source of food, presumably in part because of their high concentration and immobility. They may also have a high calorific value, as their diet of phloem sap is rich in sugars, most of which are stored in the extended rectum before excretion (Dixon 1973). Llewellyn (1972) gave maximum calorific values for lime aphids *Eucallipterus tiliae* of 6.5 kilocalories per gram dry weight (stage 4 nymphs). This figure is towards the upper limit of calorific values of insects given by Southwood (1972), though Rathcke (1968) reported 5.2 kilocalories per gram dry weight for pea aphids *Acyrtosiphon pisum*. The richness of this food supply is further illustrated by the fact that, for a period, the study area of about 15 ha at Radipole Lake supported up to 600 Sedge Warblers in 1973 and 800 in 1975.

This paper has located gaps in our knowledge of Sedge Warbler migration, some of which could be filled if the existing data from ringing studies were analysed and published. It would be valuable to assemble similar results to those presented here, so that intensity and timing of passage, durations of stay and rates of weight gain could be compared between sites as well as between years. It is suggested that the methods used here (with appropriate modifications for sites covered intermittently) would be appropriate for the analysis of many existing data. Further investigations in France and farther south are clearly required and will continue. The distribution and biology of the plum-reed aphid and the importance of other sources of food are also fit subjects for further research: we have given them shamefully inadequate attention so far. The present study utilised some 12,000 man-hours of ringing effort, and only about 100 man-hours of ecological investigation. We believe that such an investment of even 1% of the man-power of a ringing group provides disproportionately handsome dividends.

ACKNOWLEDGEMENTS

The ringing data on which half of this paper is based would have cost at least £10,000 to buy as contract research. We are enormously grateful to the single-minded dedication of some 70 people who helped provide it free. The British Trust for Ornithology made a grant towards the cost of rings in 1973, and Weymouth Corporation allowed the ringing and the erection of a hut as a base on their land.

SUMMARY

Results of three autumns' study (1973-75) of migrating Sedge Warblers *Acrocephalus schoenobaenus* in Dorset showed that some individuals gained appreciably in weight and this was found to reduce their chances of capture, so a weight-related correction was made to the capture probabilities used in this analysis.

Individuals gained weight at about half a gram per day in 1973 and 1975, but not at all in 1974. Most birds stayed for very short periods: 46%, 84% and 46% had left after two days in the three successive years. The plum-reed aphid *Hyalopteris pruni* was found to be an important source of food, and observations on the birds' feeding rates are presented. The aphids were most abundant on reeds in wet areas and at a stage before flowering, which led to local patchiness of outbreaks during the autumn. The passage of Sedge Warblers and peak abundance of aphids were broadly correlated. Aphids were abundant in 1973, very scarce in 1974 and extremely abundant in 1975. Sedge Warblers stayed longer and gained weight faster in the better aphid years. Suitable fattening places in England are few and are mainly on the south coast. Even in the best year (1975), less than 10% of the Sedge Warblers accumulated sufficient fat to take them to sub-Saharan Africa in a single non-stop flight. Some comparisons are made with the migration of Reed Warblers *A. scirpaceus* and with other species feeding on different foods. It is suggested that many ringers could make a valuable contribution by analysing and publishing their existing data on the Sedge Warbler.

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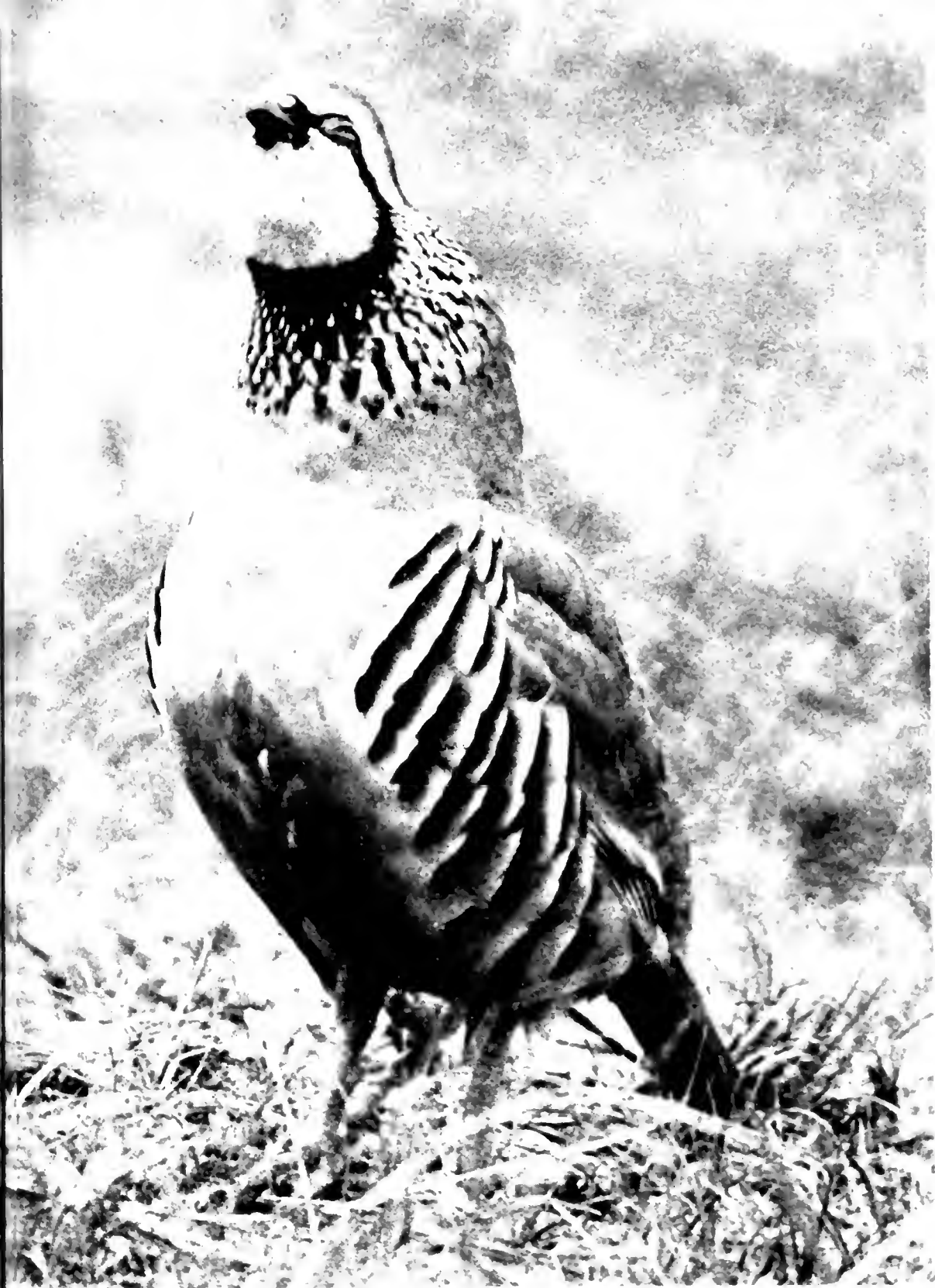
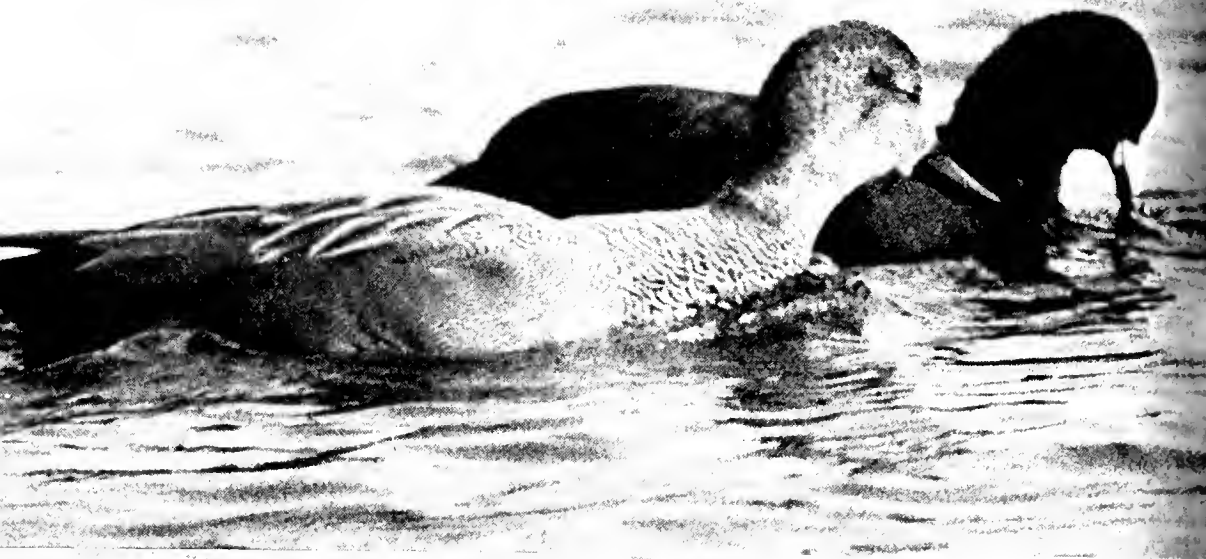


PLATE 37. Red-legged Partridge *Alectoris rufa* uttering display note as it walks across a flat, sandy hollow between coastal dunes, Norfolk, June 1968. *photo: Richard Vaughan*

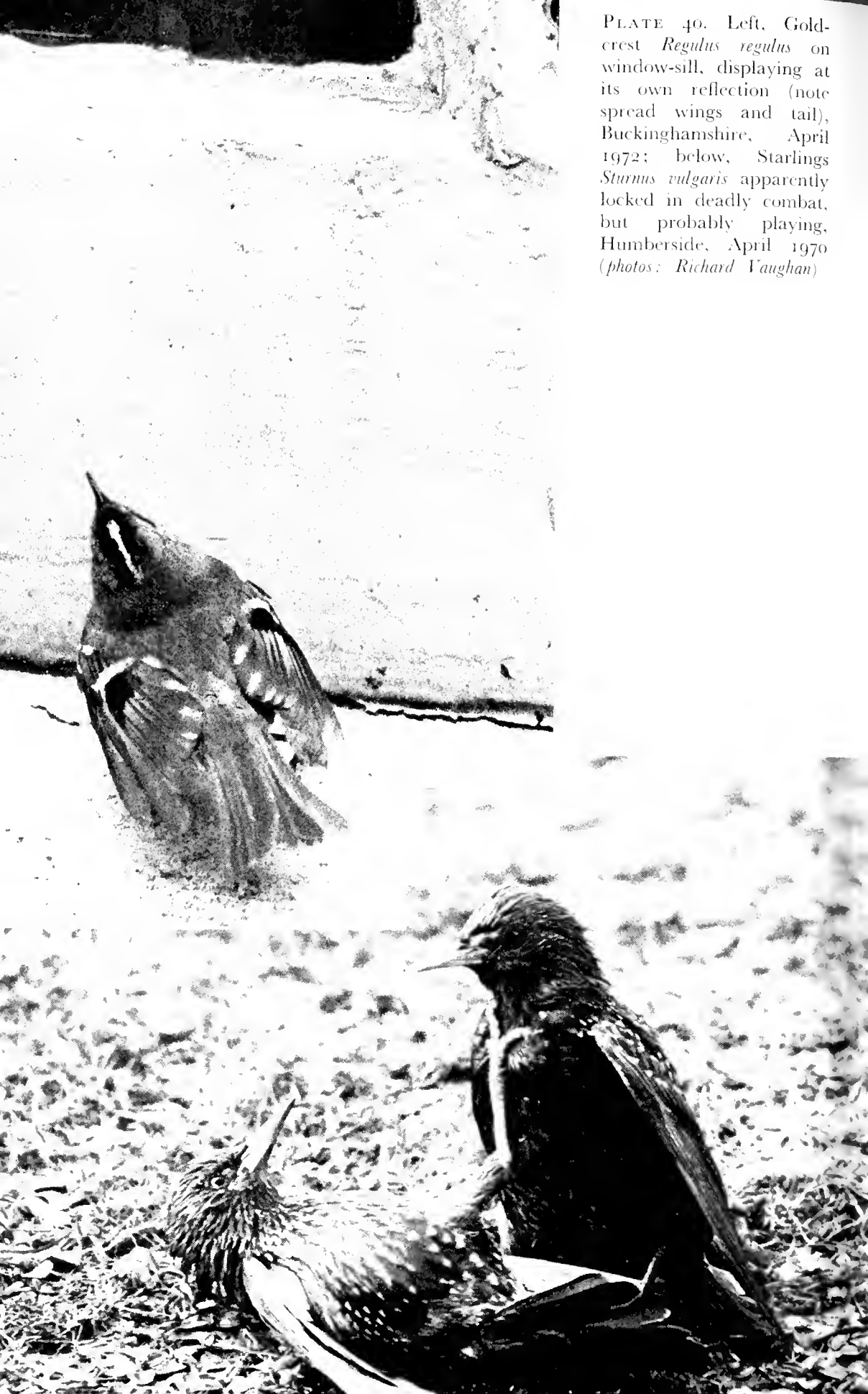




PLATES 38-39. Left top, Gadwall *Anas strepera* taking food from Coot *Fulica atra*, Humberside, October 1973; centre, Steller's Eiders *Polysticta stelleri* feeding in dense group at midnight, Norway, July 1972; bottom, Turnstone *Arenaria interpres* reacting to cockle shell, Humberside, January 1972. Above, Snipe *Gallinago gallinago* settling on dead branch, Norfolk, September 1973; below, Red-necked Phalaropes *Phalaropus lobatus* in group display, one 'whirring' its wings, Norway, July 1972 - photos: Richard Vaughan



PLATE 40. Left, Gold-
crest *Regulus regulus* on
window-sill, displaying at
its own reflection (note
spread wings and tail),
Buckinghamshire, April
1972; below, Starlings
Sturnus vulgaris apparently
locked in deadly combat,
but probably playing,
Humberside, April 1970
(photos: Richard Vaughan)



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More birds in action

Richard Vaughan

Plates 37-40

The publication in a recent issue of this journal of a selection of photographs of birds in action (*Brit. Birds*, 68: 420 and plates 52-55), which included an appeal for further such photographs, prompted the selection which is reproduced here.

The more photographically inclined reader may like to have some details of how these eight photographs were taken. Four of them were obtained from hides: the Red-legged Partridge *Alectoris rufa* (plate 37) and Turnstone *Arenaria interpres* (plate 38c) from one of my own hides, the Gadwall *Anas strepera* and Coot *Fulica atra* (plate 38a) and Snipe *Gallinago gallinago* (plate 39a) from a fixed wooden hide in a nature reserve. The Starlings *Sturnus vulgaris* (plate 40b) were photographed from a window and the Steller's Eiders *Polysticta stelleri* (plate 38b) and Red-necked Phalaropes

Phalaropus lobatus (plate 39b) were stalked in the open: all three with a 300 mm lens. The Goldcrest *Regulus regulus* (plate 40a) was so engrossed in its aggressive display that it could be approached to within two metres and photographed with a 85-200 mm zoom lens, but an extreme-length telephoto lens (1,000 mm) was needed for the Red-legged Partridge, Gadwall with Coot, and Turnstone, even though they were photographed from hides.

For the non-photographically inclined reader, it must be said that the bird photographer is seldom in a position to watch intensively the bird that is the object of his attentions. Speaking at any rate for myself, I am usually far too involved in taking photographs to make adequate notes on the bird's behaviour, even with the aid of a tape recorder. I, therefore, neither crave forgiveness nor offer an explanation for the fact that I really do not know what the Steller's Eiders figured here were feeding on; I cannot say what the phalaropes or Starlings were actually doing; nor have I an adequate explanation for the Turnstone's curious stance. One could go further than this and point out that, on occasion, the bird photographer may not even be in a position to identify his bird, so intent is he on obtaining his photograph.

Birds of a single species often indulge in communal feeding, which may simply be the result of a concentration of food; or it may be due, as is the case with Greenshanks *Tringa nebularia* and Spotted Redshanks *T. erythropus* feeding in company, to a genuine co-operative effort: the birds' activities being concerted in such a way as to stir up food. Exactly why Steller's Eiders feed on occasion in such dense masses as that illustrated in plate 38b remains a mystery. Jostein Grastveit (1971, *Sterna* 10: 31-33 and plates) described how a friend of his once saw, on the northern coast of the Varanger Peninsula, what looked like a heap of feathers floating in the water. He got out of his car to investigate and the feathers resolved themselves into 28 Steller's Eiders. An ebbing tide brought the Steller's Eiders figured here close in to feed at midnight; they were stalked round a corner of the churchyard wall at Nesseby and photographed on HP4 with a hand-held 300 mm lens at f4.5 and 1/125 sec. The drakes were all in eclipse plumage. Summer flocks of Steller's Eider are by no means rare on the Varanger Peninsula shore between Krampen and Vads, but the species is mainly a winter visitor to the Varanger Fjord, with numbers reaching a peak of 1,000 or so in March on the north shore, together with about 10,000 of the other two regular European eider species (Grastveit 1971).

Interspecific commensalism in birds seems to be rare, but probably is not. On an October day that I spent in the Royal Society for the Protection of Birds' hide at Hornsea Mere, Humberside, three

species of duck—Mallard *Anas platyrhynchos*, Wigeon *A. penelope* and Gadwall—were apparently sharing the weed that the Coots were diving for, without the Coots so much as noticing their activities (plate 38a). The Gadwall was repeatedly seen to swim up to the spot where a diving Coot had disappeared under water, its head and neck alert, evidently waiting for the Coot to surface with green weed in its bill, which the duck then shared.

Do birds play? The Starlings that I saw one morning on the lawn, apparently fighting, stayed there for over two minutes, allowing me time to get my camera, assemble it and stealthily open the window to photograph them (plate 40b). Surely they were only at play? They lay side by side, motionless, for a time; the posture seen in the photograph was maintained for at least fifteen seconds, one bird occasionally lunging at the other with bill or feet. The phalaropes, too, seemed to be playing, though perhaps their communal display had sexual significance. There were fifteen of them on the pool at Nesseby when I spent the morning of 9th June 1972 crawling round photographing them. Every now and then, the feeding birds, many of them clearly paired, would gather in rapid flight over the water, uttering their curious chittering note, drop on to the surface with a splash and, on taking off, make a loud whirring noise with their wings, which lasted for one or two seconds (plate 39b, second bird from left). The two Snipe that I watched and photographed in Norfolk in early September (plate 39a) may also have been playing. One appeared to chase the other, which then crouched down on the mud with lowered breast, and tail spread and upturned; then suddenly one decided to settle on a dead branch and the other followed, before flying off.

It was while I was photographing an early morning gathering of non-breeding Shelducks *Tadorna tadorna* near Holme-next-the-Sea, on the north Norfolk coast, in early June, that a Red-legged Partridge unexpectedly walked towards my hide calling or singing 'quick querk querk'. His mate accompanied him, not far off. This was a case of pure chance. On the other hand, the Turnstone picture resulted from hours of waiting in a hide on the shore, at Spurn Point, Humberside, specifically with the intention of photographing the waders that fed there. I noticed that the Turnstones, which ran forwards with their rather waddling gait on short legs, their heads incessantly moving rapidly to and fro, stopped running when they came to a stone or lump of seaweed, and searched. On these occasions, they at times adopted a head-down posture with the bill held horizontally (plate 38c), as if the object triggered off a reaction in the Turnstone, which automatically placed it in the right position to turn the object over in its search for food.

The Goldcrest featured here (plate 40a) was already paired, and there can be little doubt that it was a male, which thought that it detected a rival or intruder in its own reflection in the window. The house in question is in a dell and these particular windows are overshadowed by shrubs growing on the bank above them; other species, including a Chaffinch *Fringilla coelebs*, have, from time to time, attacked their reflections in them. This particular Goldcrest remained stationary for a time on the window-sill, with wings and tail both partially outspread, apparently gazing in the direction of the reflection; then it darted forward with a flutter of wings and pecked at the reflection, so that a loud tap was audible from inside; sometimes it fluttered up and down the window, pecking repeatedly. It was also seen to flick its wings, showing the very conspicuous white underwings, with a movement that was quite unlike an ordinary wing beat and much slower. Occasionally, it emitted a shrill, repeated 'seep' call. This behaviour continued, almost non-stop, sometimes for up to three hours at a stretch, for several days in the first week of April.

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Soil water-levels and delayed egg-laying of Puffins

M. Hornung and M. P. Harris

INTRODUCTION

In 1975, the breeding season of Puffins *Fratercula arctica* on the Farne Islands, Northumberland, was unusually long, due to many females laying later than normal. The spread of laying was from the first week of April to the last days of June. Digging and cleaning of burrows occurred later in 1975 than in 1974: for example, on West Wideopen (see fig. 1), few burrows were cleaned before 16th April in 1975, whereas such activities were virtually complete a week earlier in 1974. There was also a wide difference in times of laying between islands, and even between areas on individual islands, although within any one such area there was fair synchrony, indicated by young being of similar weight and plumage development. Such synchronisation is widespread in seabirds and it is often assumed, though rarely proved, that it is caused by the social interactions of the birds themselves (Nelson 1970).

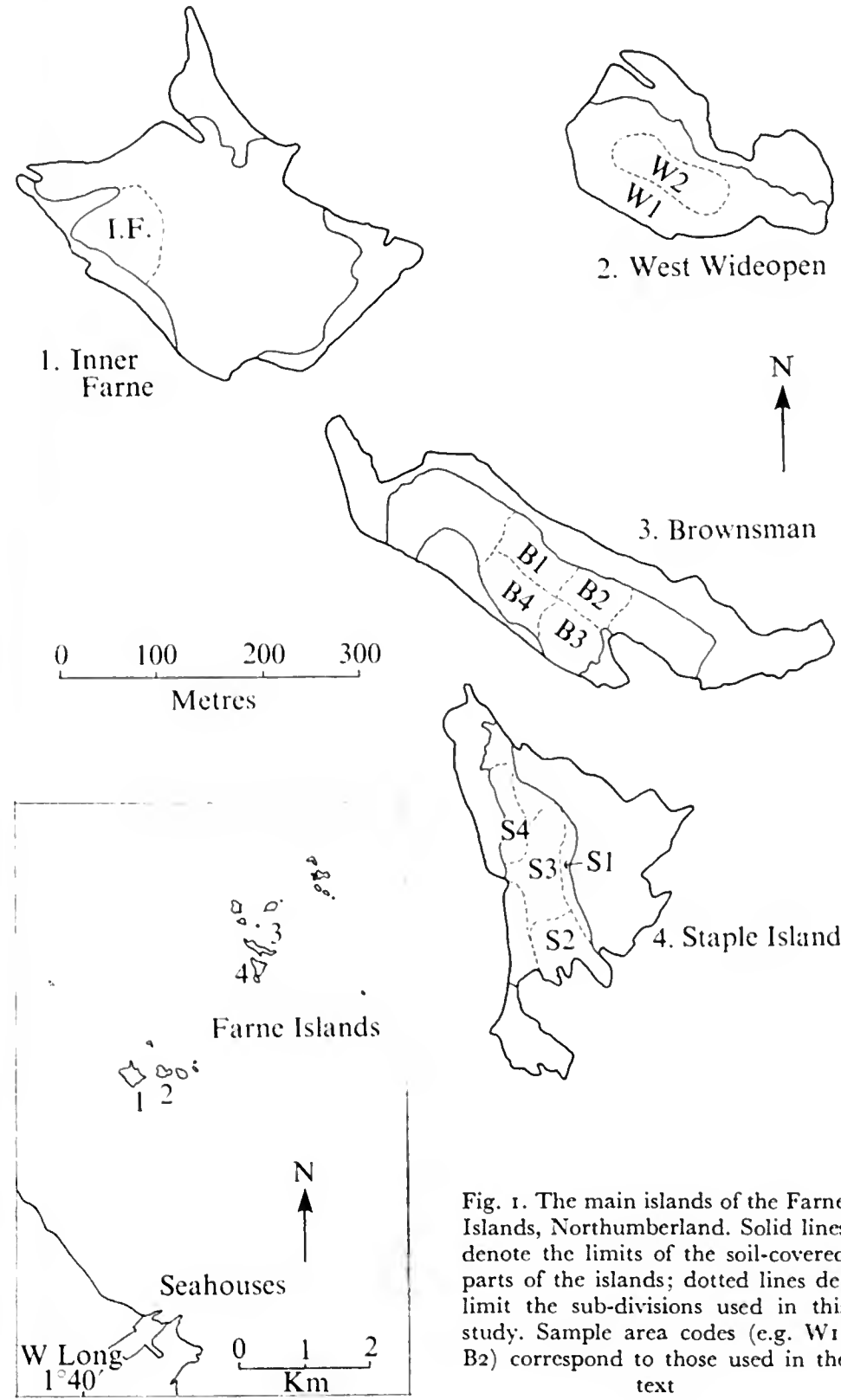


Fig. 1. The main islands of the Farne Islands, Northumberland. Solid lines denote the limits of the soil-covered parts of the islands; dotted lines delimit the sub-divisions used in this study. Sample area codes (e.g. W1, B2) correspond to those used in the text

INVESTIGATIONS

On 9th and 11th June 1975, groups of burrows were examined on each of the four main Puffin islands—Inner Farne, West Wideopen, Staple and Brownsman. On Inner Farne, the burrows are grouped into two distinct areas, but only the western colony was sampled. On the other three islands, burrows occurred wherever there was sufficient soil cover. Samples were examined in areas which showed obvious differences in soil depth, soil type, slope and vegetation cover. The proportion of the total burrows examined in each area varied from 1% to 10%. All the occupied burrows in a small sector were examined and counts made of those containing an egg or a chick. Burrows where the contents could not be determined were disregarded. The results showed marked differences in the proportion of eggs and young between the islands (table 1). The two-day difference in the sampling dates presumably influenced the results, but we cannot quantify this. There were, however, significant differences within islands (see table 1 and appendix). Whereas the four areas on Brownsman showed a uniform proportion of hatched eggs (corresponding to a mean laying date of about 1st May), there were great variations within West Wideopen and Staple.

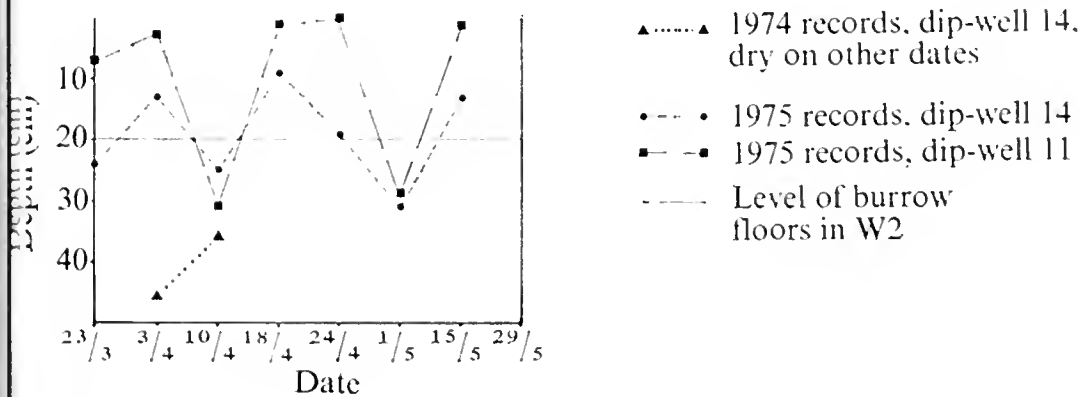
Table 1. Numbers of eggs and chicks of Puffins *Fratercula arctica* in the sampled areas on the Farne Islands, Northumberland, in June 1975

Note that West Wideopen and Inner Farne were sampled on 9th June and those on Staple and Brownsman on 11th June

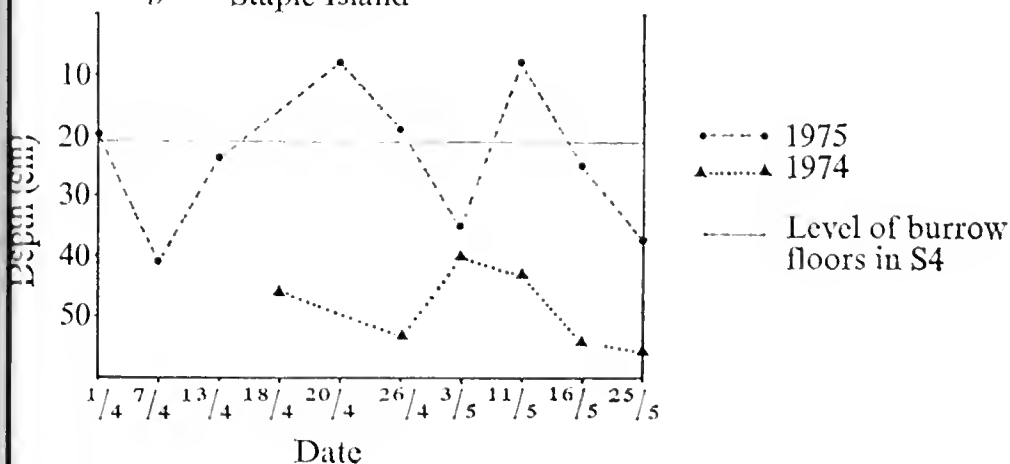
	WEST WIDEOPEN		STAPLE ISLAND				BROWNSMAN				INNER FARNE
	W1	W2	S1	S2	S3	S4	B1	B2	B3	B4	I.F.
Eggs	13	32	3	7	10	23	15	16	9	10	12
Chicks	11	1	28	21	14	4	18	20	12	16	21
% eggs	54	97	10	25	42	85	45	44	43	38	36

These nesting patterns paralleled what was known of the soil conditions on the various islands, with burrows in dry sites tending to have young at times when those in wet ground still had eggs. Soil water-levels, which have been monitored in dip-wells on these islands for the past two years, allowed these general impressions to be tested. March to May 1975 was an unusually wet period, with rainfall in the three months being 111%, 185% and 122% of the 1941-70 averages. On some islands, or parts of islands, the soil was waterlogged to within the zone used for burrowing (the top 20-25 cm). The effect of this was visually most marked on West

a West Wideopen



b Staple Island



c Brownsman

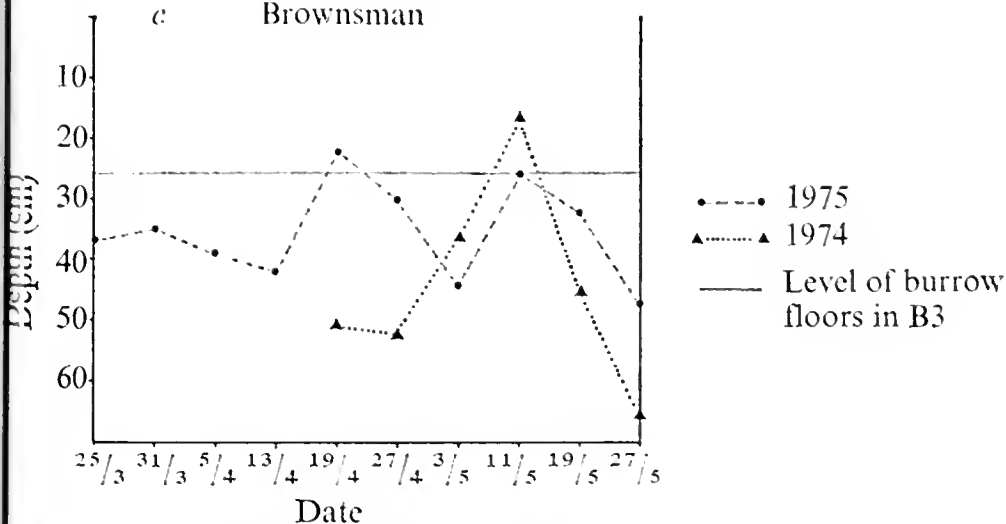


Fig. 2. Soil water-levels during the 1974 and 1975 egg-laying periods of Puffins *Fratercula arctica*, as indicated by dip-well records. In 1974, dip-well 11 on West Wideopen was always dry; and no measurements were taken before 18th April on Staple Island or 19th April on Brownsman

Wideopen, where re-excavated or cleared burrows in the central, flatter part of the island rapidly filled with water. The two dip-wells on West Wideopen were in the central part of area W2, and up to the end of May in 1975 the water-levels were consistently much higher than in 1974 (fig. 2a). Sample W1 was amongst boulders, on steeply sloping ground or over fissured rocks, where water does not accumulate. The high proportion of eggs in W2 (table 1) could have been due to birds laying late or to eggs becoming waterlogged and the embryos being killed. A further, larger sample, taken from the same area on 15th July, contained five eggs, 22 chicks younger than about ten days and three older young. A sample from W1 contained 15 large young, but no small chicks or eggs. By 11th August, all eggs had hatched. It is clear that laying had been delayed, rather than embryos killed by flooding. The main laying period in W2 was calculated as the last week of May, which corresponds to the time when the soil dried out to a level below the burrowed zone.

The colony on Staple Island is in a mass of glacial drift which has a wedge-shaped cross-section, sloping down steeply (40° or more) to the east, but gently (2° - 3°) to the north-west as the drift thins. The burrows in sample S1 were dug into the steep slope and, therefore, were not affected by waterlogging. Samples S2, S3 and S4 formed a series on the gentle slope, with S2 on the highest part of the slope and S4 on the lowest. The initial sampling showed a much higher proportion of eggs in sample S4, and on 8th July the only eggs found (three, compared to 16 young) were there. By early August, all the eggs had hatched. Thus, laying in S4 was delayed until the latter half of May. A dip-well located in area S3 indicated that the soil water-level was within the burrowed zone on several occasions in late April and early May (fig. 2b). Due to the orientation of the water table within the drift mass, this period of waterlogging of the burrowed zone was longest in S4. This area is frequented by Grey Seals *Halichoerus grypus*, and it contains wallows (with bottoms at a similar level to those of the burrows); these contained standing water until mid-May 1975. In contrast, they were completely dry by 18th April in 1974. The burrowed layer in S4 can, therefore, be assumed not to have dried out until mid-May 1975, which corresponds with the main laying period.

On Brownsman, the soil water-level in area B3 was near the burrowed zone on only one occasion in 1975 (fig. 2c). Other areas on that island have even freer-draining, shallow soils. Waterlogging therefore, was not a problem on Brownsman, and this was probably an important factor in determining the homogeneous nature of the hatching patterns (table 1). On Inner Farne, the sampled burrows were in a slope near the cliff edge, where waterlogging never occurs.

DISCUSSION

Laying dates may be influenced by the condition of the burrows when the birds first return to the colonies in March and April. The highest proportion of chicks, on Staple S1 and S2 and Inner Farne, were from areas where the burrows normally required little or no cleaning prior to occupation. The latest layings, on West Wideopen W2 and Staple S4, were in areas where most burrows have to be re-excavated, because they are partially infilled with eroding soil and are flattened by seals during the autumn. As nesting was not however, delayed on Brownsman B3, where the burrows always required much renovation, the state of the burrows is not always the proximate limiting factor.

A genetic basis for these differences in laying time is unlikely, since ringing has shown interchanges of Puffins both between the islands in the Farnes and from the Farnes to the Isle of May, Fife Region, the nearest large colony, lying about 100 km to the north. It could, however, be an age effect in an expanding colony, such as the Farnes. Adults retain their burrow from one year to the next, so that areas which were colonised long ago will tend to contain older birds than elsewhere. Although there is no such evidence for the Puffin, the old females of some other seabirds lay much earlier than those that are breeding for the first time (Coulson and White 1960). Against this, the highest proportion of chicks during the first checks on West Wideopen was in the peripheral parts of the colony, which have been colonised only in recent years. As the various areas are so close together, it is unlikely that females in one area manage to get enough food to come into breeding condition early while those in other areas do not.

We concluded, from this circumstantial evidence, that the factor directly controlling the timing and synchrony of breeding on the Farne Islands in 1975 was the time when the burrows dried out. This may be a widespread phenomenon, for flooding of burrows just before and during the breeding season has also been recorded in Puffin colonies on the Isle of May, the Shiant Islands and St Kilda. Indeed, in 1974 and 1975, accumulations of water were thought to have delayed the nesting of some groups of Puffins on the Isle of May: in 1975, one sample of 23 nests in a well-drained area had a mean hatching date of 26th May (standard error of ± 1.8 days), whereas two other groups in wetter areas, 16 nests near a pond and 19 on a wet slope, both hatched on 2nd June (both ± 1.7 days) (S. Simpson *in litt.*). Rainfall and drainage may often influence the laying synchrony of Puffins.

ACKNOWLEDGEMENTS

We are indebted to the National Trust for permission to work on the Farne

Islands and for accommodation during our visits. Our thanks are also extended to Peter Hawkey and to the summer wardens for their invaluable help on the islands.

SUMMARY

In June 1975, groups of burrows of Puffins *Fratercula arctica* on the main breeding islands of the Farne group in Northumberland were examined for the presence of eggs and young. Variations in the proportions of these were found both between and within islands. The distribution pattern of eggs and young reflected soil conditions: burrows in dry sites generally contained young, while those in wet sites contained eggs. High rainfall in spring had resulted in soil waterlogging up to the level of the burrowed zone in parts of two islands, Staple and West Wideopen. The start of laying in these areas apparently coincided with the drying out of the burrowed zone. Laying was much earlier in those parts of the colony unaffected by waterlogging. Variations in the amount of burrow excavation, food supply influences, genetic and age effects did not satisfactorily explain the delayed laying. Circumstantial evidence suggests that the time of drying out of burrows was the proximate factor controlling timing of breeding on the Farne Islands in 1975.

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Appendix. χ^2 analysis and significance of within-island variations in proportions of chicks and eggs of Puffins *Fratercula arctica*, Farne Islands, Northumberland, 1975

Difference significant at $P = 5\%*$, $1\%**$, $0.1\%***$

WEST WIDEOPEN			STAPLE ISLAND			BROWNSMAN			
	W ₂		S ₂	S ₃	S ₄		B ₂	B ₃	B ₄
W _I	23.43***	S ₁	1.49	6.0*	31.5***	B ₁	0.02	0.01	0.08
		S ₂	—	0.97	20.13***	B ₂	—	0.01	0.04
		S ₃	—	—	8.72**	B ₃	—	—	0.01

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Notes

Breeding success of Red-throated Divers on Hascosay The note by D. P. Cyrus on the breeding success of Red-throated Divers *Gavia stellata* on Fetlar, Shetland, in 1971 (*Brit. Birds*, 68: 75-76) prompts me to record the following. B. Hawkes and I were on Hascosay, Shetland, from 3rd to 10th June 1975 and we located a total of nine pairs. This represents the maximum breeding population that the island is likely to support, since there are only nine pools suitable for nesting, most of them quite small. These are nearly all situated on what can be termed the central plateau, a boggy area dominated by cottongrasses *Eriophorum*, sedges *Carex* and mosses.

Only two of the nests contained the normal two eggs and the other seven each held one. We attributed this high incidence of single-egg clutches to the cold spring weather, with snow and rain, rather than to activities of predators. The fate of one of the two-egg clutches is not known, as hatching had not taken place before we left the island. At three of the single-egg nests, the egg vanished without trace, probably through predation by skuas *Stercorarius spp.* or gulls *Larus spp.*, and at another the egg was found eaten in the nest. The remaining clutches, one of two eggs and three of one, hatched successfully, but all five young disappeared within the space of a few days, in one instance within 48 hours. Since nearly all the pools are situated on the plateau, which is also a breeding area of the Great Skua *S. skua*, it is probable that predation by this species was the major and perhaps the sole factor responsible for the lack of breeding success by the divers.

BRYAN L. SAGE

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Greenshank eating large frog On 2nd September 1975, at Neusiedlsee, Austria, I saw a Greenshank *Tringa nebularia* swallow whole a sizeable frog *Rana sp.* The episode took at least ten minutes. For three or four of these, the wader persistently picked up its victim and then dropped it as it wriggled, whereupon the frog endeavoured to jump away. After the frog was apparently dead, the bird continued to pick it up, squeeze it through its bill and then drop it again. Eventually, the Greenshank made several attempts to swallow the prey head first. At one stage, all but a leg had disappeared, but the frog was again coughed up. Finally, the Greenshank did manage to swallow it, though the frog appeared to stick in its throat for a while, as it stood still with its bill forced open. Though difficult to assess the actual size of the frog, its body must have been nearly as long as the bird's bill.

D. W. TAYLOR

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Simultaneous hunting by a pair of Bonelli's Eagles On 22nd May and 14th June 1973, I watched a pair of Bonelli's Eagles *Hieraetus fasciatus* for several hours over rocky hillsides above the Douro river gorge at Miranda do Douro, Portugal. Frequently, both soared in the strong wind with few or no wing-beats, remaining almost motionless except for head movements while searching the grassy slopes below. Often one would soar vertically far above the other and every now and then, at exactly the same moment, both would begin their stoop down towards the same spot, probably to attack Rabbits *Oryctolagus cuniculus* grazing on the hillside. This manoeuvre was repeated many times, the birds stationing themselves as before, one vertically above the other, searching the ground. Although a successful stoop was not seen, such simultaneous attack no doubt increases the chances of a kill. GEOFFREY BEVEN

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Terns feeding on flying ants During August 1974, there were many mass flights of ants in the Chew Stoke area, Avon. On the 5th, parties of ten to 20 gulls, mainly Black-headed *Larus ridibundus*, hunting at a height of about 50 metres, were joined by three terns, either Common *Sterna hirundo* or Arctic *S. paradisaea*, calling excitedly and catching the flying ants with great agility. From the literature, it appears that both tern species occasionally take flies near or on the surface of water, but feeding on flying ants and at this height has apparently not been described previously. D. E. LADHAMS
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Despite the paucity of published records, this kind of behaviour is by no means uncommon. EDS

Unusual death of Great Spotted Woodpecker On 6th June 1975, at Saarbrücken, West Germany, I noticed a Great Spotted Woodpecker *Dendrocopos major*, apparently motionless, on the trunk of a beech *Fagus sylvatica*. As I approached, I realised that the bird was dead and hanging by its bill from a crevice about five metres from the ground. I reached it with a ladder and found that its head was stuck at the base of a vertical crevice about 30 cm long. I was able to move the head freely in and out of the crevice at a point only about 10 cm above where it had become wedged. The woodpecker, a female, had been dead for one or two days and its plumage was not in very good condition. ANDRE CYR

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Yellow Wagtail apparently drying itself on dead weed On 11th August 1975, I watched a male Yellow Wagtail *Motacilla*

flava bathing in shallow water at the edge of Chew Valley Lake, Avon. After a while, it flew on to a small pile of dead waterweed that was lying on the bank and proceeded to rub its head, neck and, later, its breast on the weed, in what appeared to be a deliberate attempt to dry itself. Having done this about four times, it preened for a while before starting to feed.

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Reviews

British Birds of Prey. By Leslie Brown. Collins 'New Naturalist', London, 1976. 400 pages; 34 maps; 11 figures; 23 tables; eight pages of appendix tables; 40 black-and-white photographs. £6.00.

Aficionado and professional alike have waited a long time for this book. It is now 20 years since Volume V of D. A. Bannerman's *The Birds of the British Isles* appeared and, since then, no comprehensive work on the British diurnal birds of prey has been attempted. How strange that it should have been left to a Scot resident in Africa for most of his life to have filled the gap; yet how fitting, for Leslie Brown is not only a world authority, but a tremendous enthusiast, with a gift for lively writing, in which solid scientific fact and comment are interlaced with vividly descriptive anecdote.

His labours have been hereulean. He has flown back and forth, sought all the obvious and not so obvious fountains of knowledge, researched the published literature, extracted much unpublished material from a host of sources and drawn on his own deep understanding and experience. The result is a massive assemblage which is almost wholly satisfying.

Convention is generally followed: the first three chapters cover, respectively, the characteristics of the Falconiformes, the British species, and classification and field identification; they are followed by 15 chapters, each of which is devoted to a so-called resident species, with the White-tailed Eagle—as represented by the imports on the island of Rhum—included optimistically. The succeeding

two chapters deal with boreal migrants (Rough-legged Buzzard and Gyr Falcon) and the seven British vagrants, of which, alas, the Egyptian Vulture and Spotted Eagle are unlikely to be seen here again. The final seven chapters, which constitute almost half of the book, discuss very fully the complex of biological and ecological factors and the author's forthright attitudes to conservation. The whole is rounded off by two tabular appendices of the food of selected British raptors and summarised breeding data, a good bibliography and an adequate index.

In a review of a book so packed with information, it seems invidious to refer to the lacunae; but by no means are these of the author's making and not the least service which his labours provide is to identify the areas of our ignorance. He can find no good account of the breeding behaviour of the Hobby, the best to hand being D. Nethersole-Thompson's in 1931; none for the Merlin, the Kestrel or the Sparrowhawk, although for the last there is certainly much information waiting in the wings; for the Peregrine he has had to go back to Francis Heatherley in 1910 to find an adequate summary of the breeding biology at a single nest. He can find no accurate data on egg laying for the Honey Buzzard, nor age data for the Sparrowhawk; for our own Golden Eagle, no good moult studies.

On status, he is surprised by the inability of the Minsmere-bred Marsh Harriers (well over 100) to colonise other sites and by the failure of the Goshawk to become firmly established, but he judges there will shortly be more potential Goshawk habitat than there was 200 years ago. He shares the general perplexity about the reasons for the decline of the Merlin, although the results of the 1976 breeding survey in Wales may imply significant under-recording elsewhere. He has hopes for that successful raptor, the Black Kite, to become a British breeder eventually.

From status to persecution is but a short step. In correspondence with the author after his return to Kenya, he told me that the pungency of his views on this issue might be too strong for the tastes of the Royal Society for the Protection of Birds and the Nature Conservancy Council. I cherish the belief that what he has to say will be acceptable to both organisations. For myself, I regard his unabashed naming of one Highland estate, on which open gin traps were set for Golden Eagles in 1966, as a welcome fingerpost to a more purposive exposure of arrogant and ignorant selfishness.

We are told that the manuscript was delivered in December 1972 and, thus, it has taken $3\frac{1}{2}$ years to process, an inordinate length of time even by publishing standards. In the case of such an important and good book as this one, it is to be regretted that the opportunity was missed to carry out some gentle editing on the repetitions and to furnish an addendum of the most recent work. DEREK BARBER

Parent Birds and their Young. By Alexander F. Skutch. University of Texas Press, Austin and London, 1976. 503 pages; 116 black-and-white photographs; several figures. £17.90.

The author of this book has been studying the birds of Central America for more than 40 years and has an impressive list of papers on them to his credit. He has written this book as a complete survey of the reproduction of birds, drawing on examples from all over the world, but it is perhaps not surprising, nor does it necessarily detract from the work, that he quotes very frequently from his own and other people's studies on the birds with which he is most familiar. What this means is that, as well as being informed about the subject of the title, one is gaining proportionately more knowledge about the birds of Central America.

The book takes one through the entire breeding cycle, from the formation of the pair, though with rather little detail on actual behaviour, via territory, nesting seasons, the nest, eggs, incubation, and nestlings, to the independence of the young from their parents. Chapters entitled 'Crafts and materials used in nest building', 'Neglectful fathers', 'Patterns of incubation', 'The male parent's discovery of the nestlings' and 'The nest as a dormitory' give some idea of the depth of the coverage, as well as of the style in which the author does not hesitate to use commonplace words of description where a pedant might demand biological terms. There are 34 chapters in all, plus about 800 references, in this large and weighty book. Although the quality of the photographs, and especially of their reproduction, is not good, they are mostly selected to illustrate a particular point. They are reinforced by a small number of line-drawings and tables.

In assessing the value of this book to the general reader, one has to repeat the proviso that it is quite heavily biased to America, and to Central America in particular. Many groups of birds, especially those confined to the Old World, and some regions, for example the Arctic, get comparatively scant treatment. References to North Atlantic seabirds, to waders, and to waterfowl, are all comparatively few. Only one page is devoted to the Arctic, the problems it poses to birds breeding there and the adaptations they have had to make in order to do so. To balance these shortcomings, there are 75 citations concerning New World flycatchers, nearly as many each on tanagers and hummingbirds, and no less than 20 pages covering the tropics, going into great detail on relative nesting seasons, nesting success and reproductive potential of tropical birds. More than usual, I feel, in a book purporting to cover the world's birds, this one reflects the author's special interest.

This criticism apart, the book is a veritable mine of information,

is well produced and is a positive delight to read. Personal observations abound, always acute, often witty. What could so easily have been a stodgy compendium of facts culled from the literature is, instead, a work which conveys its information in a way that makes reading it or consulting it a pleasure. It may not be as fully comprehensive in its scope as the blurb claims, but it certainly succeeds both as a review of the reproduction of all birds and, even more, as a source of information on the breeding habits of Central American birds, for which the literature is not always readily accessible to the European reader. What is strange about the sex life of the Bellicose Elaenia? Why does the Fasciated Antshrike sometimes present food items to her unhatched eggs? The answers can be found in this book, and much, much more besides.

M. A. OGILVIE

Rarities Committee announcements

NEW CHAIRMAN

Having served on the Rarities Committee for a total of nearly twelve years since 1962, and as chairman since 1972, D. I. M. Wallace has now expressed a wish to retire from that position. His enormous contribution to the workings of the Rarities Committee will be well known to most readers. He summarised in detail the committee's achievements in its first ten years (*Brit. Birds*, 63: 113-129) and, while he has been chairman, has consolidated its reputation, both in this country and abroad; he also has an exemplary record of making available to others his personal expertise, through identification papers and notes. In the past thirteen years, he has contributed 'Field identification of Hippolais warblers' (*Brit. Birds*, 57: 282-301), 'Dowitcher identification: a brief review' (61: 366-372), 'Identification of Spotted Sandpipers out of breeding plumage' (63: 168-173), 'Field identification of Dusky and Radde's Warblers' (with R. J. Johns, 65: 497-501), 'Field identification of small species in the genus *Calidris*' (67: 1-17), 'Field identification of Short-toed and Lesser Short-toed Larks' (with R. H. Dennis, 68: 238-241), 'Field identification of grey geese' (with M. A. Ogilvie, 68: 57-67), 'A review of waterthrush identification' (69: 27-33), 'Identification of European treecreepers' (with C. J. Mead, 69: 117-131) and 'Distinguishing Great Snipe from Snipe' (pages 377-383 in this issue). He has not hesitated to tackle some of the most difficult problems confronting field observers and it is encouraging to note that his output is increasing rather than diminishing; other

papers are in preparation and we hope that his retirement from official duties on the Rarities Committee will give him more time to devote to this invaluable work. He is, of course, remaining a member of the editorial board.

After seeking advice from the ten members of the Rarities Committee, the editorial board has now appointed P. J. Grant as the new chairman. Like his predecessor, he is well known for his artistic as well as ornithological ability, and similarly has tackled some difficult identification problems in print: for example, in conjunction with R. E. Scott, 'Identification of immature Mediterranean Gulls' (60: 365-368), 'Uncompleted moult in *Sterna* terns and the problem of identification' (62: 93-97) and 'Field identification of juvenile Common, Arctic and Roseate Terns' (62: 297-299), as well as, on his own, 'Field identification of Richard's and Tawny Pipits' (65: 287-290). Moreover, we shall shortly be starting to publish a major series of five papers by him on the massive problem of identification of west Palearctic gulls in all plumages. We welcome Peter Grant and are sure that his reign will be as distinguished as those of his predecessors, P. A. D. Hollom (1959-72) and D. I. M. Wallace (1972-76). EDS

ELECTION OF NEW MEMBER

As previously announced (*Brit. Birds*, 69: 321), D. J. Holman was co-opted to the Rarities Committee at the beginning of April 1976, following the voluntary retirement of R. A. Richardson. His co-option has not only maintained the important link with East Anglia, but his acquaintance with the rarity scene nationally has already been of great value in our assessment of records. He is the committee's unanimous nomination for formal election to serve from the beginning of April 1977.

We hope that his appointment will be widely endorsed, but, if any ornithological body or individual wishes to put forward other names, they should write to me by 31st December 1976, with the address and an outline of the qualifications of their candidate, as well as confirmation of his or her willingness to stand for election. Then, the county and regional recorders (*Brit. Birds*, 69: 232-236) and bird observatories will be asked to vote on the names, as has been the practice in the past.

Recruitment to the committee is on a regular basis of at least one new member each year, the vacancy arising either from any voluntary retirement which may occur, or from the automatic retirement of the longest serving member. The next vacancy will thus arise from 1st April 1978, and nominations will be sought by an announcement in this journal in autumn 1977. P. J. GRANT

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News and comment *Peter Conder*

British ornithologists held by guerrillas Since about 9th May, Stephanie Tyler, well known for her studies of Grey Wagtails (e.g. *Bird Study*, 19: 69-80), together with her husband Lindsay and their two children, Robert (8) and Sarah (5), have been in the hands of Eritrean and Tigrean separatist guerrillas on the Ethiopian/Sudanese border. We hope that the Tylers will soon be released safely, as was the journalist Jon Swain, who was held for several months by the same rebel forces.

Trade in endangered species The United Kingdom has ratified the Washington Convention on International Trade in Endangered Species of Wild Flora and Fauna. It was completed on 3rd August 1976 by Her Majesty's Ambassador in Berne, when he deposited with the Swiss Government the United Kingdom Instrument of Ratification.

Ratification means that the United Kingdom, as a party state to the convention, will be able to play a full part and to vote at the conference of the parties due to be held in Berne in November, when the implementation of the convention, including the list of species controlled, will be reviewed.

The Endangered Species (Import and Export) Bill is due to receive its second reading in the House of Commons on 15th October 1976. The bill fell out of the parliamentary programme in the summer, as a casualty of party political bickering.

New fines for the Protection of Birds Acts An act increasing fines for offences under the Protection of Birds Act 1954-67 came into force on 29th July 1976; the maximum penalties for ordinary offences are increased from £5 to £20, and for special offences from £25 to £100. The bill was introduced into the House of Commons by Mr Peter Hardy and to the House of Lords by Lord Chelwood, and took only three weeks to pass through all its stages and receive Royal Assent.

This is a first step in the right direction, but, so far as offences involving Peregrines are concerned, the fines are only one fifth, or one tenth even, of the price that can be obtained for these falcons in Europe or the Arab states. Penalties for offences involving the sale of birds should be two or three times the value of the original transaction. Or perhaps a month's birdwatching on Dartmoor?

Turkish children count their storks Above the mosques and minarets of Istanbul, over 300,000 White Storks have been counted in a single autumn, migrating from their breeding grounds in eastern Europe. Turkey clearly has an international responsibility, not only for the storks that breed in its warm climes (and Turkey probably has the largest concentration of White Storks in the world), but also for those that pass through in spring and autumn.

The newly formed Dogal Hayati Koruma Derneği (Turkish Wildlife Protection Society) has quickly realised this responsibility, and has just launched a project to count storks nesting in that country. But this is a project with a difference, for it will be carried out by organised groups of schoolchildren, each of which is being sent specially prepared leaflets on the White Stork with census forms, and is being asked to count the nesting storks in its village.

Incidentally, all those concerned with the plight of the world's avifauna ought to be members of the International Council for Bird Preservation. Membership of the British Section is £3 a year and for this you receive four copies of the colour magazine *Birds International*, three copies of the highly informative 'President's letter' and the annual report. The address of the ICBP is c/o British Museum (Nat. Hist.), Cromwell Road, London SW7 5BD.

Fishermen netting auks off the Irish coast Ornithologists have regularly expressed concern at the number of auks, particularly Brünnich's Guillemots, drowned in fishing nets off Greenland. According to Dr Clare Lloyd of the Royal Society for the Protection of Birds' Research Department, an alarming number of auks are being killed in nets in Galway Bay, Ireland. Local ornithologists have reported catches of up to 150 birds per day. An estimate of the total seasonal mortality puts the figure at 20,000 birds, or 20% of the total number of auks recorded in the Irish Wildbird Conservancy's booklet *The Birds of Clare and Limerick*. Two or three Great Northern Divers a week are also reported killed. The chairman of the Irish Wildbird Conservancy is taking the matter up with the fishing authorities with urgency, but says that the most he can hope for is restriction on the use of certain fishing areas. Sport fishermen are not at all happy with the use of drift nets for Salmon, but, on the other hand, it is likely that the local fishermen will fight any move to restrict fishing areas.

Birdwatching guides and bird lists Two more guides to the birds of geographical areas have reached my desk and are worth mentioning. The first, *A Checklist of the Birds of Cornwall and the Isles of Scilly*, by Roger Penhallurick, is obtainable from Headland Publications, Bread Street, Penzance, price 40p, plus postage and packing. The author says that this is the first list since 1906. It is just a list with symbols denoting the status of each species. Apparently it heralds something more. The second is *Wildlife in Wessex*, by Ralph Whitlock and published by Moonraker Press, Bradford-on-Avon, Wiltshire, price £3.50. The author endeavours to give the reader a picture of the geological regions of Wessex and then there is a gazetteer of the places to visit to see the wildlife that has been described; he also lists the natural history and conservation organisations of the region. It is an introductory guide; indeed, within its 148 pages, it would be difficult to be more.

Einar Brun Ornithology has suffered the irreplaceable loss of Einar Brun, professor of zoology and director of the Marine Biological Station at Tromsø University, Norway. He was born in Sandefjord in 1936 and obtained his first degree in 1963. He then came to Britain, as warden of the Calf of Man Bird Observatory and completed a PhD on the biology of echinoderms at the University of Liverpool's Marine Biological Station at Port Erin, Isle of Man in 1969. He was appointed head of the Zoology Department at Tromsø University the following year, and professor of marine biology in 1972, and was currently working on the life and artificial production of Salmon. He eventually turned his university department, at a key location in northern Scandinavia, into an important centre for ornithological studies, helping to develop the journal *Ornis Scandinavica*. Recently, he had been concerned with the assessment of the hazard presented by oil exploration to seabirds, and bought his own Piper Cub to carry out aerial surveys for this purpose. He was killed when his aircraft crashed into the sea after he encountered bad weather approaching Bardufoss airport in Troms on the evening of 13th July 1976. He was a pleasant, stocky, determined character with a neat beard, of vast energy, knowledge, ability and daring, concealed behind a quiet, modest demeanour, with whom it was a pleasure and privilege to deal. I regard a trip made to watch him count the birds on the great cliffs around Bear Island from a little rubber boat in the summer of 1972 as one of my most rewarding ornithological experiences. Whilst he did not take foolish risks, he fearlessly explored the boundaries of human achievement, and it is a tragedy that his luck has failed. (Contributed by Dr W. R. P. Bourne.)

Opinions expressed in this feature are not necessarily those of the editors of British Birds

Winter summary *D. A. Christie*

These are largely unchecked reports, not authenticated records

This summary covers some of the more interesting events of the winter of 1975/76, dealing mainly with the commoner species.

DIVERS TO SWANS

There were few reports of gatherings of divers. The only ones of any real interest were as follows: 15 **Great Northern** *Gavia immer* at Golspie (Highland) in mid-January; 24 **Black-throated** *G. arctica* near Dodman Point (Cornwall) on 20th March; and 35 **Red-throated Divers** *G. stellata* at Formby Point (Merseyside) on 8th November, 40 at Dungeness (Kent) on 24th January and 232 flying north in 15 minutes at Forvie (Grampian) on 13th February. Early in March, 47 **Red-necked Grebes** *Podiceps grisegena* were counted in the Firth of Forth (Grampian), while the highest numbers of **Slavonian Grebes** *P. auritus* reported were 25 in the Blackwater (Essex) in mid-February and 18 or more at Ross (Northumberland) on 15th February.

We received very little information on wildfowl numbers in 1975/76, but the following may be of some interest. In Lancashire, a maximum of 4,800 **Teal** *Anas crecca* was noted at Martin Mere in December, while on the Mersey the winter peak was 8,000 on 15th February. Low water levels on the Ouse Washes (Cambridgeshire/Norfolk) meant a maximum of only 21,000 **Wigeon** *A. penelope*. There were also 1,050 **Pintail** *A. acuta* on the washes, but this total was eclipsed by 7,000 on the Mersey marshes on 18th January, the same date as 4,000 were counted on the Ribble marshes (Lancashire). A record 139 **Goldeneye** *Bucephala clangula* were at Belvide Reservoir (Staffordshire) on 18th January, though exceptional numbers were not reported elsewhere. **Long-tailed Ducks** *Clangula hyemalis* appeared at several inland localities, in Durham, West Yorkshire, Derbyshire, Staffordshire, Nottinghamshire, Essex and Avon: four were at Abberton Reservoir (Essex) from January and up to three at Chew Valley Lake (Avon) from November until 24th April. **Smew** *Mergus albellus* were far more widespread than usual, both on the coast and inland. No fewer than 46 inland sites held Smew at some time during the winter and, as expected, highest numbers were in the south-east, particularly the London area, with the maximum being eleven at Wraybury gravel pits (Berkshire) on 29th February. There was also an interesting series of reports from the West Midlands area, the species appearing at ten waters, with three at Draycote (Warwickshire) from 31st January to the end of February. Also in the Midlands, after a high count of 97 **Goosanders** *M. merganser* at Blithfield Reservoir (Staffordshire) on 18th January, a record 148 were present there on 24th February.

White-fronted Geese *Anser albifrons* were in lower numbers than usual, 2,500 at Slimbridge (Gloucestershire) at the end of January being the highest count there during the whole winter. Peak numbers of **Pink-footed Geese** *A. brachyrhynchus* on the south-west Lancashire mosses occurred in the first week of December, when a record 19,000 were counted. **Bean Geese** *A. fabalis* were far more widely reported than usual, from Shetland to the south coast of England; away from traditional sites, small groups were found at 15 localities, the most being eleven flying in off the sea at Balmedie (Grampian) on 11th January, 15 at Titchfield Haven (Hampshire) from the end of January (a county record), and, most unusually, 32 at Redmires Reservoir (South Yorkshire) on 2nd January. The largest herds of **Whooper Swans** *Cygnus cygnus* reported in Britain were 440 at Loch of Strathbeg (Grampian) on 14th November and 200 or more at Lindisfarne (Northumberland) at the end of that month. At Ibsley, on the

River Avon (Hampshire), numbers of **Bewick's Swans** *C. bewickii* reached an all-time high of 104 in February; on the Ouse Washes, 1,257 were counted in the same month, the most there since 1972.

RAPTORS TO AUKS

Several **Marsh Harriers** *Circus aeruginosus* wintered in East Anglia and Kent. **Spotted Crakes** *Porzana porzana* were found in West Yorkshire, Merseyside, Nottinghamshire, Warwickshire, Berkshire (two), Kent and Hampshire (two), though this species was probably under-reported, as usual.

On 15th February a total of 1,350 **Grey Plovers** *Pluvialis squatarola* was estimated on the Ribble estuary, a record number for the locality in winter. The largest gathering of **Jack Snipe** *Limnophanes minimus* was 23 at Lower Stoke (Kent) on 15th November, while 20 at Draycote in early February was the most seen inland. The only notable report of **Black-tailed Godwits** *Limosa limosa* was a count of 1,200 on the River Dee (Cheshire) on 18th February. Overwintering **Little Stints** *Calidris minutus* were few, with reports from just six sites, including an interesting one of a singleton well inland at Wath Ings (South Yorkshire) on 28th December. Over 200 **Ruffs** *Philomachus pugnax* were at Martin Mere in January, and small flocks appeared at many localities where the species is not regular in winter, especially in the south, after hard weather at the end of January and beginning of February.

Glaucous Gulls *Larus hyperboreus* were commoner than in previous winters: 15 were at Fraserburgh (Grampian) on 24th March and up to seven in the North Shields/Seaton Sluice area of Northumberland in the early months of 1976; 28 or more individuals appeared at 18 inland lakes and reservoirs, mostly in the Midlands. There were also more than the usual number of **Iceland Gulls** *L. glaucoideus*: again in the Seaton Sluice area, up to four were present with the Glaucous Gulls; about 13 were found at six inland waters during the period, with three at Blithfield Reservoir in January and three at Chasewater (also Staffordshire) in January and February, at least five different individuals being recorded at the latter site from the end of November. **Mediterranean Gulls** *L. melanocephalus* were scattered in ones and twos around the coast, though at North Shields there were possibly seven, including five seen together, in February and up to five in March; while up to seven were present in the Weymouth/Radipole Lake area (Dorset) at the end of January and up to eight in February; inland, single birds were at Blithfield Reservoir in 22nd November, at Chew Valley Lake on 14th and 28th February, and at Sevenoaks (Kent) on 27th February and 2nd March. Very few **Little Gulls** *L. minutus* were reported, maxima being 20 at Formby Point from 9th to 12th November and 17 flying north at Hauxley (Northumberland) on 9th November; one was seen inland at Pitsford Reservoir (Northamptonshire) on 11th January. There was a large assembly of 20,000 to 25,000 **Kittiwakes** *Rissa tridactyla* in St Ives Bay (Cornwall) on 12th January. **Little Auks** *Plautus alle* continued to be seen in small numbers, with 19 flying north off Seaton Sluice on 14th December. A large southerly movement of unidentified auks took place off Hartlepool (Cleveland) on 31st January, when 13,400 passed in just six and a half hours.

OWLS TO BUNTINGS

One of the most remarkable events of the winter was the number of **Long-eared Owls** *Asio otus*, reported from all over Britain. Roosts of up to 40 and more were discovered in Kent, and, even as far inland as Upton Fields (Worcestershire), 15 were present in January and February. A full review of the records will not be given here, since we hope to publish a paper on the invasion in the near future.

Shore Larks *Eremophila alpestris* seem to have been fewer than usual. Fourteen were at Walberswick (Suffolk) in November and slightly smaller numbers at

Druridge Bay (Northumberland), where from one to eight were present throughout the winter. In the west, five were at Freshfield (Merseyside) on 1st February and five at nearby Waterloo on 6th.

The expected **Blackcaps** *Sylvia atricapilla* were recorded, but fewer than in the exceptionally mild winter of 1974/75, though six wintered in the Tyncside area and two as far north as Aberdeen (Grampian). The picture for **Chiffchaffs** *Phylloscopus collybita* was similar, with many reports, but smaller numbers than in the previous winter. Five were found in the Bristol area in December, at Wraysbury/Horton on 31st December, and in Kent in January, while a total of about four overwintered in Shetland. A singing **Willow Warbler** *P. trochilus* was found at Maple Cross sewage farm (Hertfordshire) on 30th December. There were many sightings of **Waxwings** *Bombus garrulus*, particularly in the north, where flocks of up to 25 were not uncommon; the largest gathering was of 100 or more at Hamsterley Mill (Durham) on 4th December.

As usual, the largest flocks of **Twites** *Acanthis flavirostris* were in Kent: present all winter, the maxima were 440 at Kingsnorth on 23rd February, 400 at Cliffe on 17th January, 350 on the Medway estuary in December and 350 at Sandwich Bay on 22nd November. Elsewhere, 200 at Crossens marsh (Merseyside) on 15th February, 100 inland at Hythe sewage farm (Essex) on the same date and 67 at The Lodge, Sandy (Bedfordshire), on 18th February were all unusual. As many as 800 **Redpolls** *A. flammea* wintered at Tuddenham (Suffolk). The winter was notable for **Bramblings** *Fringilla montifringilla*. Flocks of 1,000 were reported from Ranby and Clumber (both Nottinghamshire) in December, Hinstock (Salop) at the end of February and Crossness sewage farm (Essex) in late February and early March; 1,250 were in the Winchfield area of Hampshire, again at the end of February; while in Gloucestershire, 2,500 were counted in the Chittening/Severn Beach area at the end of January and on 22nd February, 2,000 being present also at Aust on the latter date.

Lapland Buntings *Calcarius lapponicus* were rather scarce, with most in Northumberland, where the species was recorded at five localities with a maximum of at least twelve at Druridge from 15th to 22nd February; elsewhere there were up to two at Teesside (Cleveland) in December and January, two at Goxhill (Humberside) from 2nd to 10th February, two at Capel Fleet (Kent) on 17th January, and singles at Chittening on 24th January and at Farlington marshes (Hampshire) on 15th February, while one remained at Keyhaven (Hampshire) from November until at least 25th February. Numbers of **Snow Buntings** *Plectrophenax nivalis* were about normal, the maximum in England being 330 at Teesmouth in December; in the west, there were several small flocks of up to 35 in Lancashire and Merseyside and up to six at four places in Avon and Somerset; and in the south two were at Pennington marshes (Hampshire) until at least mid-February. Inland, higher numbers than usual were reported, from Northumberland, South Yorkshire, Nottinghamshire, Derbyshire, Northamptonshire and Warwickshire: 18 were at Cheviot (Northumberland) on 28th February and the remarkable number of 40-50 at Redmires Reservoir on 7th February; while at Filton, Bristol, two were seen regularly in a garden from 20th January.

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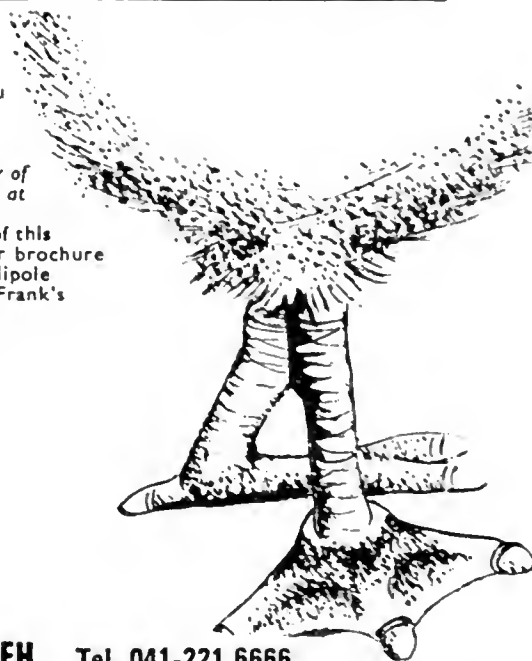


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4. Snipe, Wadsworth migration and reed aphids. C. F. Babb, R. F. Green, G. R. M. Peckham and P. A. Peckham.
5. Miscellaneous notes on R. and F. Wadsworth. Plates 37-40.
6. Snipe, wadsworths and the dead egg raising of Puffins. Dr. M. Wadsworth, Dr. M. F. Hill.

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Front cover: Snake charming, painting by Pancha Hanu, 1900.

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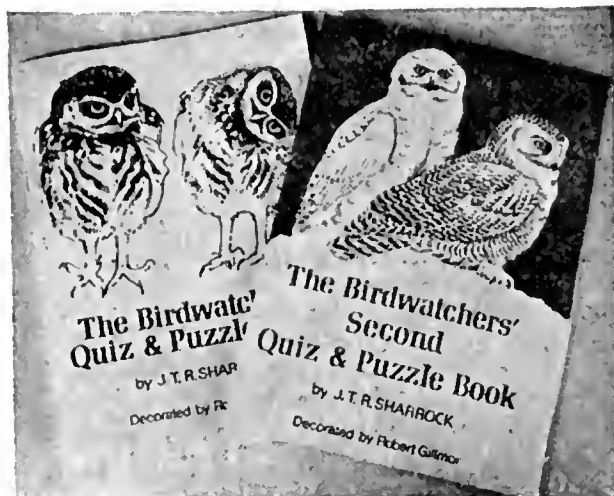
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VOLUME 69 NUMBER II NOVEMBER 1976



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Entries will be judged on interest and originality, as well as on technical excellence: one showing a previously unrecorded aspect of bird behaviour might, for instance, gain the award in preference to another of pure photographic merit.

Each entry should have attached to it a brief account (not exceeding 200 words) of the circumstances in which it was obtained, drawing attention to any facts that might be relevant in the judging of the competition, the method used (c.g. stalked, from a hide), technical details (focal length of lens and make of camera and film), locality, date and the photographer's name and address.

The closing date for entries is 5th January 1977. All photographs will be acknowledged, but they cannot be returned unless accompanied by a stamped and addressed envelope. The winning photograph, and perhaps some of the runners-up, will be published in *British Birds*, and entries are accepted on this understanding.

All entries should be clearly labelled 'Bird Photograph of the Year' and should be sent to the editorial office at **59 Curlew Crescent, Bedford MK41 7HY**. EDS

Dark-bellied Brent Geese in Britain and Europe, 1955-76

M. A. Ogilvie and A. K. M. St Joseph

INTRODUCTION

During 1971-76 the world population of the Dark-bellied Brent Goose *Branta bernicla bernicla* has more than trebled, while in the period since the first attempt at assessing the size of the population (1955-57) it has increased nearly sixfold. It has managed this at a time when biologists were predicting that food supplies were holding its numbers at the earlier low level, when conservationists were increasingly worried for its future well-being, and when massive reclamation schemes were threatening its estuarine winter habitats. The change from comparative scarcity to relative abundance has been partly due to man's giving the population increased protection, but mainly through the operation of natural forces and through an ability to adapt with which no-one was prepared to credit it. This paper is concerned with charting the course of this success story.

PAST HISTORY

The very low numbers of Dark-bellied Brent Geese wintering in north-west Europe had been a matter of great concern to conservationists. Salomonsen (1958) showed convincingly that the geese had been much more numerous in the latter half of the 19th century, had begun to decline thereafter, and were then at a very low ebb. Atkinson-Willes and Matthews (1960), with a detailed review of British literature, corrected some of Salomonsen's figures, but agreed that there had been a massive decrease, probably, they thought, of the order of 75%. The parasitic organism which drastically reduced the Brent Goose's main food plant, eelgrass *Zostera*, in the 1930's probably had a serious effect on an already depleted population, while wartime disturbance of many of the favoured estuaries must also have played a part.

Whatever the causes, by the early 1950's the population was at a very low level. Sufficient concern was expressed for the species to be given fully protected status in the British Protection of Birds Act, 1954. Largely through the promptings of the International Waterfowl Research Bureau, the Brent Goose is now protected in all countries of its range, except West Germany.

CENSUS METHODS

Counts of Dark-bellied Brent Geese have generally been made on their wintering grounds, but sometimes of flocks passing a point on

migration. The breeding grounds are in northern Siberia, and no estimates of numbers are available from there. Salomonsen (1958) arrived at an average figure for the period 1955-57, using the counts and estimates then available. Burton and Boyd (1964) produced totals for 1960/61 and 1962/63, based on the winter wildfowl counts made regularly at the majority of British haunts, plus counts and estimates obtained from the rest of the range. By exertion and example, they put together a team of counters which has since contributed to an annual census. In normal winters, rather more than half the population is to be found in England, and a further substantial proportion in western France. Provided these two countries can be covered adequately in mid-winter, when large-scale movements are at a minimum, counts from the Netherlands, Denmark and West Germany, which comprise the rest of the winter range, are less important.

The annual censuses received a boost in 1966/67, with the start of the mid-winter wildfowl counts organised by the International Waterfowl Research Bureau. This count, in mid-January each year, since supplemented by another in November, has produced fuller coverage. Aerial surveys in several countries gave a better idea of the numbers of Brent Geese roosting and feeding offshore, where accurate counts present some problems that do not exist for geese inland.

In 1972, a further impetus was given by the ecological survey, commissioned by the Department of the Environment, of the coasts of Suffolk, Essex and Kent likely to be affected by the building of the Third London Airport on Maplin Sands, Foulness, Essex. This project ran for three years and included detailed work on the numbers, movements and feeding behaviour of the Brent Geese in that area and farther afield (Anon. 1975).

Since the last general survey of Brent Geese numbers (Ogilvie and Matthews 1969), a few more counts have become available, while knowledge gained more recently permits what we feel are better estimates for the less well covered areas. For this reason, there are also some changes from the totals in Prater (1976).

TOTAL NUMBERS DURING 1955-76

The peak counts of Dark-bellied Brent Geese made each winter since 1955 are set out in table 1, together with the month in each case and the division by countries. The figures for 1955/56 to 1957/58 are based on the average for the three years given by Salomonsen (1958). Counts for the Netherlands and Denmark are much less complete than those for Britain and France, particularly in the mid-1960's, while those from West Germany are fragmentary. Counts from the Channel Islands are included in the French total.

Table 1. Total population of Dark-bellied Brent Goose *Branta bernicla bernicla*, 1955/56 to 1975/76, with breakdown by countries

Figures are rounded to the nearest 100 and those in brackets are estimates (see text)

	Month of count	Britain	France	Netherlands	West Germany	Denmark	TOTALS
1955/56	Average						
1956/57	of	7,400	3,700	1,500	2,200	1,700	16,500
1957/58	3 years						
1958/59	No count						
1959/60	No count						
1960/61	Feb	14,800	6,500	200	a few	300	21,800
1961/62	No count						
1962/63	Jan	15,200	6,800	100	a few	700	22,800
1963/64	Dec	12,300	10,000	(1,000)	(100)	(200)	23,600
1964/65	Jan	10,800	13,500	(1,000)	(100)	(200)	25,600
1965/66	Jan	17,600	8,500	(1,000)	(100)	(200)	27,300
1966/67	Jan	15,800	11,500	4,000	a few	(200)	31,500
1967/68	Jan	18,900	8,600	3,000	300	200	31,000
1968/69	Jan	18,200	8,200	1,000	100	100	27,600
1969/70	Jan	18,800	13,300	3,450	300	500	36,300
1970/71	Jan	23,800	13,300	2,300	800	600	40,800
1971/72	Dec	22,500	9,600	1,100	(500)	(300)	34,000
1972/73	Jan	29,300	18,400	2,200	(1,000)	900	51,800
1973/74	Dec	41,200	32,900	7,100	(3,000)	300	84,500
1974/75	Jan	31,400	21,500	10,000	(8,000)	400	71,300
1975/76	Jan	49,000	41,000	10,000	(10,000)	600	110,600

Brackets in the table indicate that some estimating was necessary.

The peak is arrived at by summing available counts for each winter month and taking the highest total, either for December or January. In the few years when two good totals are available, there has been quite reasonable agreement between them.

The national counts shown in the table are not necessarily the maxima recorded in each year, though this is usually the case for Britain. The peak in France is often in a different month from that in Britain, reflecting movement between the two countries (see below). Peak counts in the other three countries invariably occur at migration periods, in October and again in April and May.

The pattern revealed by the total counts is of a slow but steady increase from 16,500 in 1955-57 to 33,000 in the late 1960's. In the last seven years, the total has leapt to its present 110,000 in 1975/76. This increase has been characterised by a series of sharp rises and temporary setbacks related to differences in annual breeding success.

The large increases in the mid-winter counts in the Netherlands and West Germany in recent years are due partly to the recent very mild winters, allowing more geese to stay farther east.

COUNTS IN BRITAIN AND FRANCE

The two most important wintering countries for the Brent Geese are Britain and France; from the peak counts in table 1, they rarely hold less than 75% and often more than 90% of the total. Ogilvie and Matthews (1969) stated that there was some interrelation between the counts in Britain and those in France, a peak in Britain in December being followed by one in France in January. Furthermore, although the peak count in Britain was increasing, that in France was dropping. Table 2 shows that this situation did not last, and that the peak counts in France have recently been rising in line

Table 2. Peak counts, months of peaks, and percentages of totals of Dark-bellied Brent Geese *Branta bernicla bernicla* in Britain and France, 1966/67 to 1975/76

Figures are rounded to the nearest 100

	BRITAIN			FRANCE		
	Peak	Month of peak	% of total	Peak	Month of peak	% of total
1966/67	16,300	Dec	51.7	11,500	Jan	36.5
1967/68	18,900	Jan	61.0	8,600	Jan	27.7
1968/69	18,200	Jan	65.9	8,900	Dec	32.2
1969/70	18,800	Jan	51.8	13,300	Jan	36.6
1970/71	24,700	Feb	60.5	13,300	Jan	32.6
1971/72	22,500	Dec	66.2	13,100	Jan	38.5
1972/73	29,600	Dec	57.1	18,400	Jan	35.5
1973/74	41,200	Dec	48.8	32,900	Dec	38.9
1974/75	31,400	Jan	44.0	21,500	Jan	30.2
1975/76	49,000	Jan	44.3	45,000	Dec	40.7

Table 3. Peak counts and percentages of total population of Dark-bellied Brent Geese *Branta bernicla bernicla* in grouped haunts in Britain 1963/64 to 1975/76

Figures are rounded to the nearest 10 and those in brackets include some interpolation

	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
Wash	Peak % (1,800) 7.6	(1,900) 7.4	(1,900) 7.0	2,850 9.0	(2,800) 9.0	(2,800) 10.1	(2,800) 7.7	2,500 6.1	2,450 7.2	3,460 6.7	5,930 7.0	3,860 5.4	8,780 7.9
North Norfolk	Peak % (1,400) 5.9	(1,500) 5.9	(1,500) 5.5	(1,700) 5.4	1,700 5.5	1,860 6.7	(1,800) 5.0	(2,000) 4.9	(1,900) 5.6	2,180 4.2	3,860 4.6	2,580 3.6	6,180 5.6
Suffolk and Essex	Peak % 2,680 11.4	3,450 13.5	5,620 20.6	4,730 15.0	5,370 17.3	5,520 20.0	8,390 23.1	7,790 19.1	7,790 22.4	9,850 19.1	12,710 15.0	12,570 17.6	14,430 13.0
Foulness and Leigh	Peak % 6,400 27.1	5,440 21.3	7,070 25.9	6,270 19.9	6,940 22.4	6,820 24.7	7,400 20.4	13,940 34.2	8,180 24.1	10,650 20.6	16,170 19.1	11,680 16.4	17,500 15.8
Kent	Peak % (100) 0.4	180 0.7	(90) 0.3	120 0.4	210 0.7	330 1.2	840 2.3	790 1.9	(680) 2.0	1,160 2.2	1,490 1.8	1,440 2.0	1,560 1.4
Chichester, Langstone Peak & Pagham harbours	2,300 9.7	1,200 4.6	2,470 9.0	3,230 10.3	3,950 12.7	4,480 16.2	4,400 12.1	7,460 18.3	6,510 19.1	10,130 19.6	12,850 15.2	10,450 14.7	12,420 11.2
Other south coast	Peak % (120) 0.5	180 0.7	90 0.3	230 0.7	140 0.5	130 0.5	690 1.9	620 1.5	490 1.4	1,310 2.5	1,870 2.2	1,200 1.7	3,530 3.2
SEASON'S TOTALS	23,600	25,600	27,300	31,500	31,000	27,600	36,300	40,800	34,000	51,800	84,500	71,300	110,600

with the total population. In contrast, the peak in Britain has, in the last few years, declined slightly as a percentage of the total count. This state of affairs may, of course, change yet again, but it appears that in France, for which the situation was reviewed by Mahéo (1976), increased numbers have been more easily absorbed.

DISTRIBUTION WITHIN BRITAIN

A detailed analysis is in preparation, covering the movements of Brent Geese within north-west Europe, both between and within winters, based on sightings of individually ring-marked birds and on counts. For the present, we may examine the British counts to see whether numbers at the various sites have increased in line with the general trend. The only satisfactory measure available is the peak count recorded each winter at a particular site, or group of sites; for some, particularly in earlier winters, only one count is available, while, for a few others, some interpolation has been necessary. Sites have been grouped on a fairly subjective basis, aimed at identifying the more important haunts (table 3). Foulness, coupled with nearby Leigh Marsh, has been treated separately from the rest of Essex, partly because it is known to be the most important early winter site in the country, and partly because the recent threats to build the Third London Airport made it of especial conservation interest; the Port of London Authority has not yet abandoned its plans for a seaport there. The final category of 'Other south coast' includes a scattering of sites from Portsmouth harbour, Hampshire, to the Exe estuary, Devon.

The peak counts for each group since 1963/64 are set out, together with the percentages of the world population that they represent. As the peaks occurred in different months at different sites, they cannot be added together to produce a peak for the whole of Britain.

The traditionally most important areas of Foulness and the rest of Essex have declined slightly in relative importance, while the south coast harbours of Chichester and Langstone have shown the greatest increase. The Wash and north Norfolk have held remarkably consistent proportions of the total each winter. Kent and the minor south coast sites have been increasingly frequented, though they are still unimportant.

Despite the great increase in the numbers of Brent Geese visiting Britain, their range has not changed. The Wash still forms the effective northern limit on the east coast, although up to 300 have occurred in the Humber and as far north as Lindisfarne, Northumberland. Westwards, the Exe estuary has remained the limit, although a few always winter in the Burry estuary, West Glamorgan.

Virtually all suitable sites in the Wash, north Norfolk, Suffolk, Essex and Kent have been regularly used, but on the south coast

some were generally bypassed before about 1969. These are now also in regular use, by some hundreds of Brent Geese. They are Portsmouth harbour, Needs Oar Point and Keyhaven, Hampshire; Newtown estuary, Isle of Wight; and Poole harbour and the Fleet, Dorset.

RECRUITMENT AND MORTALITY

The Dark-bellied Brent Goose is subject to greater variation in annual breeding success than any other goose population so far studied, approached only by the populations of the Light-bellied Brent Goose *B. b. hrota* breeding in arctic Canada and northern Greenland (Lynch and Voelzer 1974, *Irish Bird Reports*). The usual method of expressing the annual production is in terms of the percentage of first-year birds in the population. These are readily distinguished by the pale edgings to their wing coverts and, in the first part of the winter, by the absence of a white neck patch. Sample counts showing the proportions of young have been made between November and January every year since 1954/55, both in Britain and in France. Good agreement has been found between samples taken in different places, and they have therefore been amalgamated. Table 4 sets out the sample examined, and the number and percentage of young, for each year.

Table 4. First-winter percentages, and sample sizes, for Dark-bellied Brent Geese *Branta bernicla bernicla*, 1954/55 to 1975/76

	Total examined	No. first-winter	% first-winter
1954/55	776	314	40.5
1955/56	2,020	522	25.8
1956/57	1,484	97	6.5
1957/58	1,810	955	52.8
1958/59	1,800	7	0.4
1959/60	2,285	494	21.6
1960/61	3,742	1,683	45.0
1961/62	3,128	159	5.1
1962/63	5,000	11	0.2
1963/64	2,486	870	35.0
1964/65	3,171	1,101	34.7
1965/66	1,510	104	6.9
1966/67	3,751	1,491	39.7
1967/68	4,158	233	5.6
1968/69	7,253	301	0.4
1969/70	9,103	4,526	49.7
1970/71	8,753	3,289	37.7
1971/72	3,206	22	0.7
1972/73	4,106	1,458	35.5
1973/74	3,469	1,681	48.5
1974/75	8,000	3	0.04
1975/76	9,866	4,569	46.2
MEAN			24.5

It will be seen from the table that the annual breeding success has fluctuated between less than 1% and over 50%, the mean of the 22 years being 24.5%. Up to 1968/69, two seasons were close to that mean, six were above, and seven were so far below as to be classed as breeding failures. Thus, there was just under one good breeding year in two. Of the seven most recent seasons, no less than five have been good.

The precise factors that are the most critical in affecting breeding in this high arctic population have not been examined, but evidence from studies of geese breeding elsewhere in the arctic, including Barnacle Geese *B. leucopsis* in east Greenland and in Svalbard, and Light-bellied Brent Geese on Southampton Island, Canada, in areas where the summer is a little longer and the vagaries of the weather less extreme, suggest that delayed springs with prolonged snow cover and low temperatures, and heavy precipitation at certain periods, can prevent laying altogether, or kill large numbers of eggs and young (Barry 1962, Cabot and West 1973, H. Boyd *in litt.*, Dr M. Owen *in litt.*). The weather data currently available from Siberia are much less complete than from these other regions and, for this reason, no attempt has yet been made to correlate them with breeding success. Another important consideration must be the recent run of mild winters in north-west Europe, which is likely to have had a beneficial effect on the food supply and, therefore, on winter mortality. Studies of Lesser Snow Geese *Anser c. caerulescens* in Canada have shown that good feeding in winter and spring improves the condition of the females, enabling them to lay more eggs and incubate them more successfully (Harvey 1971).

Whatever the factors, in the last seven years the Dark-bellied Brent Geese have bred successfully five times, compared with only six successes in the previous 15 years. But this is not the sole cause of the recent spectacular increase in total numbers. This is demonstrated in table 5, constructed from the population counts and percentages of first-winter birds, showing the annual recruitment and losses (see also fig. 1).

The mortality figure is based on the losses from mid-winter to mid-winter, and is of adults and sub-adults alive at the beginning of the mortality period. Thus, it does not include losses of young produced in the middle of the twelve-month mortality period. The breeding performance figure is a mean of age-ratio counts taken at different times through the winter, mainly in the months of November and December, when they are likely to be most representative of the whole population. Mortality of the young of the year taking place until then will, therefore, affect the calculation of the number of the adults and sub-adults. Such a bias will not occur in years of nil or very low production, and is unlikely to alter the pattern.

Table 5. Recruitment and losses of Dark-bellied Brent Geese *Branta bernicla bernicla*, 1955/56 to 1975/76

The population totals for 1955/56 to 1957/58 are based on the average count of 16,500 for the three winters. The totals for 1958/59, 1959/60 and 1961/62 are interpolations. Allowance has been made in each case for breeding success

Calendar year t	Total count at end of year t N_t	% 1st winter J_t	No. 1st winter $N_t \times J_t = Y_t$	No. adults and sub-adults $N_t - Y_t = A_t$	Calculated losses of adults and sub-adults in previous twelve months		Annual mortality rate L_t/N_{t-1}
					$N_{t-1} - A_t = L_t$	L_t/N_{t-1}	
1955	15,500	25.8	3,990	11,510			
1956	15,500	6.5	1,008	14,492	1,008		6.5
1957	18,500	52.8	9,768	8,732	6,768		43.7
1958	18,000	0.4	72	17,928	572		3.1
1959	19,500	21.6	4,212	15,288	2,712		15.1
1960	21,800	45.0	9,810	11,990	7,510		38.5
1961	22,000	5.1	1,122	20,878	922		4.2
1962	22,800	0.2	46	22,754	(- 754)		(+ 3.4)
1963	23,600	35.0	8,260	15,340	7,460		32.7
1964	25,600	34.7	8,883	16,717	6,883		26.9
1965	27,300	6.9	1,884	25,416	184		0.7
1966	31,500	39.7	12,506	18,994	8,306		30.4
1967	31,000	5.6	1,736	29,264	2,236		7.1
1968	27,600	0.4	110	27,490	3,510		11.3
1969	36,300	49.7	18,041	18,259	9,341		33.8
1970	40,800	37.7	15,382	25,418	10,882		30.0
1971	34,000	0.7	238	33,762	7,038		17.3
1972	51,800	35.5	18,389	33,411	589		1.7
1973	84,500	48.5	40,982	43,518	8,282		16.0
1974	71,300	0.04	29	71,271	13,529		16.0
1975	110,600	46.2	51,097	59,503	11,797		16.5

MEAN 17.4

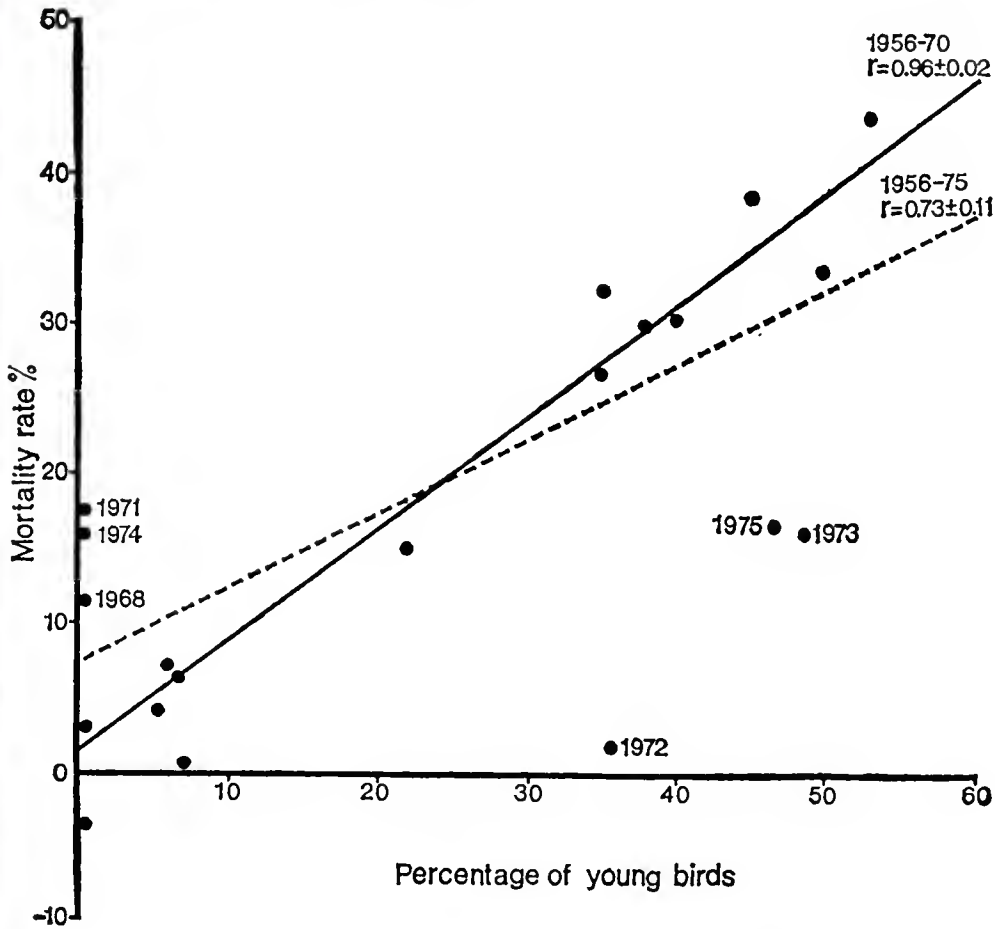


Fig. 1. Annual mortality of Dark-bellied Brent Geese *Branta bernicla bernicla* plotted against annual breeding success

The extremely close correlation between the breeding success in the summer and the annual mortality up to 1971 is most striking. Since then, they have diverged almost as consistently: the breeding success has continued to vary widely, but the mortality has shown little variation and has declined in general. A correlation between breeding success and annual mortality seems at first sight to be a straightforward density-dependent relationship. In a good breeding year, the adults will be liable to a higher mortality on a number of counts. A strain is thrown on the female in producing the eggs and maintaining herself through incubation, and on both parents while they accompany the vulnerable young. The presence of large numbers of young could be more than the food resources of the breeding grounds could stand, resulting in starvation. An early onset of wintry conditions at the end of the summer could overwhelm those families that were even a few days late in getting their young

on the wing, a stage which is also likely to be delayed if food is short. Young tend to be more vulnerable to autumn and winter shooting, and this vulnerability must also extend to the accompanying parents.

Further density-dependent mortality would occur if the increased numbers following a good breeding season were to result in a food shortage in autumn and winter. One would, however, expect it to do so to an increasing extent as the winter progressed. The table shows that this does not happen, it being clear that there is no carry-over of increased mortality from a good breeding year into the next. Further, from the start of each mortality year, in mid-winter, the young of the previous breeding season will be included in the calculation. These would be the birds most likely to suffer heavy losses from a food shortage in late winter.

Although some or all of the above factors may result in increased mortality in good breeding years, there is still the problem that in non-breeding years the mortality is consistently low. If conditions were sufficiently bad for laying to be completely prevented, one would not expect high adult mortality, but, if laying took place and then the great majority of eggs and young were killed by the weather, then significant numbers of adults might also be expected to succumb. This was certainly the case with a number of goose species breeding in the Canadian arctic in 1972, including the Light-bellied Brent Goose. The latter had a mortality in that calendar year of 42.8%, although no shooting was permitted, and produced only 0.08% young (Lynch and Voelzer 1974).

We have not even begun to understand why recruitment and mortality of this population should have been so closely correlated and our bafflement is enhanced by the fact that the correlation which broke down about five years ago has not reformed. In 1972 a very good breeding season was accompanied by negligible mortality. The latter rose in 1973, another excellent breeding season, but to no more than the level of the poor production years of 1971 and 1974, and stayed at this level in the good season of 1975. The mortality in 1971 and 1974 was above average for non-breeding years, as it was to a lesser extent in 1968.

In 1972, Denmark placed the Brent Goose on the protected list for a trial five-year period, leaving only West Germany and the USSR with an open season in the species' range. Fog (1972) claimed that in 1961, 1965 and 1966 the numbers of Dark-bellied Brent Geese shot in Denmark were respectively 1,300, 1,112 and 2,641. The last figure was then about 8% of the total population. Clearly, cessation of shooting on this scale will have had an effect on the mortality, though the drop in losses is considerably more than could be accounted for by this alone.

Protection was given to the Dark-bellied Brent Goose in the Netherlands in 1950, in Britain in 1954 and in France in 1966. Pokrovsky (1963) reported that the Brent Goose received complete protection in the USSR in 1962, but Lampio (1974) stated that this was so only in Lithuania, Moldavia and the Ukraine, and that there was an autumn open season elsewhere in the country. In none of these cases was there a dramatic change comparable to that which coincided with protection in Denmark. Available counts from Britain alone suggest that the slow but steady increase after 1954 may in fact have begun earlier. Numbers in France actually dropped sharply in the two winters following protection, before a sizeable increase in 1969 (table 2). The only difference between the granting of protection in Britain, France and Denmark is that in the last case it happened to coincide with a run of good breeding years. Two good breeding seasons in succession have occurred before, in 1963 and 1964. Although this was one year after at least parts of the USSR gave protection, the population total hardly responded at all. When two happened again in 1969 and 1970, the total of geese did rise sharply from 27,600 in 1968/69 to 40,800 in 1970/71, only to drop back again to 34,000 in 1971/72 following a breeding failure. It was the two further good breeding seasons in 1972 and 1973, producing a unique four good years in five, coupled with the disappearance of an important mortality factor in the shape of Danish shooting, that enabled the population to increase dramatically.

PREDICTION OF FUTURE POPULATION SIZE

At various times in the past, it was stated that the numbers of Dark-bellied Brent Geese in a particular locality or country had reached their probable maximum, and that further increases were being prevented by an inadequate food supply (e.g. Burton 1961, Ogilvie and Matthews 1969, F. Roux *in litt.*). Certainly, in the period up to 1968/69 or even to 1971/72, the population seemed incapable of sustained fast growth despite good breeding seasons and increased protection. It now appears that the population may have increased past the point below which years of low production by themselves are likely to cause drastic decreases, whereas good seasons will probably produce further large increases.

The mean annual mortality rate over the last five years has been 13.5%. The average proportion of young produced in all the successful seasons so far experienced is 42.3%. By applying these two factors to the present population total of 110,000 in different combinations of breeding success and failure in future years, one can produce estimates of the resulting population size. If the next three breeding seasons were failures, a sequence that has not yet occurred

within our experience, the population would drop to about 70,000 by the end of 1978. If, on the other hand, the next two summers were both successful, which would also be, with 1975, a unique three-in-a-row, the total would go up to about 250,000. The more likely combinations over the next three years of two successes and one failure, or one success and two failures, would produce totals of about 215,000 and 120,000 respectively.

These predictions are, of course, supposing no drastic change in the status quo. If widespread shooting were reintroduced, or there were a series of hard winters, then the mortality rate might well increase from the present relatively low level. In order to test this we have used an arbitrary 27.0% annual mortality, double the present rate, and recalculated. Three successive breeding failures in these circumstances would reduce the population to around 40,000, while two more good years would increase it to 175,000. Two successes and one failure in the next three years would produce about 130,000, while one success and two failures would result in a total of about 75,000.

All these figures are speculative, but there seems no reason to suppose that the population total will move outside the admittedly rather wide limits that we have set. We can therefore look forward either to oscillations around the present level, or to further large increases. A steady decline to the former levels of 20,000-30,000 seems unlikely.

It is, of course, possible that the breeding grounds may not accommodate greatly increased numbers. As table 5 shows, there were almost 30,000 available breeding pairs in 1975 compared with no more than 15,000 in 1967, the highest total before the recent increase. A lack of breeding sites might reduce the potential production. Data on brood sizes are lacking, but it seems likely that, in a good breeding season, brood size will average around three, so that only rarely will all mature pairs have brought young to the wintering grounds, even at the lower population levels of earlier years.

BRENT GEESE AND AGRICULTURE

It had been firmly ingrained into the beliefs of wildfowl specialists that the Dark-bellied Brent Goose would feed only on the intertidal zone, where they first preferred eelgrass *Zostera*, would later turn to algae, including *Enteromorpha* and *Ulva*, and finally, in the spring, would feed to a limited extent on high saltings where they ate saltmarsh-grass *Puccinellia* and sea aster *Aster tripolium*. These successive preferences coincide with the periods of maximum growth of the different foods and, therefore, of their nutrient value to the geese (Ranwell and Downing 1959). As evidence of the inability

of the geese to adapt, there was an apparent sharp decline in their numbers in the 1930's following a catastrophic decline in the amount of *Zostera*, due to a disease; the alternative food supply, the algae, was clearly insufficient. We have no information, however, on the breeding success in those years, and a run of poor seasons may have coincided with the *Zostera* shortage (though birds in poor condition, due to winter food shortage, may breed less well). Nevertheless, it is certain that the geese did not exploit any other source of food.

Sporadic reports of Brent Geese feeding on fields over the sea-wall in winter were received in the 1960's, but it was in 1969/70 that large numbers were first found doing so, with over 3,000 in various parts of Essex in January 1970. Data for 1970/71 and 1971/72 are lacking, but in 1972/73 about 3,000 were again recorded doing so. In 1973/74, the total jumped to about 10,000 and, though dropping slightly to 7,000 in 1974/75, it was up to around 15,000 in 1975/76. Field feeding became widespread in the Netherlands over the same period.

There seems more correlation between field feeding and the presence of a high proportion of young than with a certain total population. Of course, the amount of intertidal food available may vary. The only recent measurements made of the latter were in 1972/73 and 1973/74 when, based on detailed calculations of both the food available and the rates of depletion by the geese, it was estimated that Essex was carrying the maximum number of Brent Geese possible (Charman 1975). Geese remaining in parts of Essex for the full winter in those years resorted to field feeding. A severe early winter would have further reduced the carrying capacity of the intertidal zone.

The principal inland foods are grass and winter wheat. A preliminary report on the phenomenon has been circulated (Bennett and St Joseph 1974). This adaptation by the geese opens up potentially unlimited food resources for them at a time when the intertidal zone may be fully exploited. Against this, however, some of the new foods may not be as nutritious for the geese as *Zostera* or algae, in which case one might expect a reduction in breeding potential due to the adults being in poorer condition; such nutritional aspects require investigation with captive birds. It also brings the geese into direct conflict with farmers, who may take steps to prevent the use of their fields: there is no doubt that one or two have already suffered financial loss. Although scaring of the geese is feasible, it is both time-consuming and costs money, though less than probable losses to crops.

In view of the likely range of the future population sizes, discussion of what steps need to be taken is urgently required at an international level. The major threat to the most important site at

Foulness has receded, though, as already stated, plans for a seaport are not dead. Each site now carries many more Brent Geese than in the recent past and is therefore potentially far more important. Conversely, it could be argued that the loss of any one site will have much less effect than it would have done a few years ago. A large population is probably better able to withstand a sharp decrease than a small one. It can be argued, however, that any loss of habitat now would probably lead to an increase in inland feeding. The Brent Goose is only one species of the many that depend upon estuarine and coastal mudflats and the fact that it is now doing better is no reason for abandoning the fight to preserve this diminishing and sorely threatened habitat.

The Brent Geese did not turn to inland feeding in the 1930's when the *Zostera* disappeared, probably because they were then legitimate quarry and this made them too wary to exploit the possibilities. After 15 years or more of protection, this consideration has ceased to apply. The geese are now feeding on fields over the sea-wall, and ranging up to 3 km from the water, in considerable numbers. A minority of farmers have reacted to this by shooting them, in hundreds in at least one case. This is permissible under the present law, provided that the farmer, who is required to do so, can satisfy a court of law that such action was necessary to prevent serious damage to his crops.

A limited open season might, in these circumstances, be preferable to indiscriminate slaughter by or on behalf of the farmers, or to the Brent Goose being declared a 'pest' by transfer to the Second Schedule of the Protection of Birds Acts, 1954-67, which would give it no close season at all. Shooting would add to the natural mortality and slow down, if not arrest, the present increase in numbers. It would also make the geese less tame and so more reluctant to feed over the sea-wall. This might lead to further mortality, through starvation.

It would clearly be wrong to go straight back to the full open season of 1st September to 20th February, which exists for other quarry species on the British coast. As the main aim would be to prevent agricultural damage, shooting should at first be restricted to the places and times where inland feeding occurs: inland of the sea-wall, in a few counties, and in January and February. But this is not a national matter only. Both the French and the Danes will probably renew protection of the species for a further period of years and the Dutch show no signs of wanting to reverse their long-standing protection. Any measures taken in Britain must be with the full knowledge and approval of the other countries that are used by this population of geese. The Dutch, incidentally, provide financial compensation for agricultural damage.

Ideally, any open season should be on a year-to-year basis, dependent on the results of the routine monitoring of the population size and its annual breeding success. This is not, however, achievable under the present British legislation because, although there are powers to permit shooting of the Brent Goose for a limited period and in specified areas, the legal procedure is too slow to allow for annual variation. It would not be possible, for example, to declare an open season in December as a result of high production figures and population counts obtained in October.

A better approach, in years of high production, would be for licences to be issued to farmers who could show that they were likely to suffer serious damage to their crops, and that they had rigorously employed the full range of conventional scaring methods without success. Under this system, it would be easier to monitor the effect on the population, by making the submission of returns of the numbers of Brent Geese shot a condition of the licence. Unfortunately, the issue of licences for birds other than those on the First Schedule, which would have a much wider application in dealing with localised damage, would require a modification of the existing law, which would be an excessively lengthy operation. Regardless of whether an open season or a licence system were adopted, it would be essential to create a number of refuges, covering both the normal estuarine habitats and some inland areas where the geese could be encouraged to feed, and so reduce damage elsewhere.

In North America, such a flexible response to annual production figures is practised, with summer and early autumn surveys being used to fix shooting seasons and bag limits for the following autumn and winter. This has, however, been by no means an unqualified success in a closely parallel situation with the Light-bellied Brent Goose (Penkala *et al.* 1975).

The Atlantic seaboard wintering population of Light-bellied Brent Geese also declined sharply in the 1930's, the *Zostera* there being hit by the same disease. From 1933 to 1951 no shooting of this population was allowed. Then, from 1952, an open season was permitted, beginning at between ten and 30 days, with a daily bag limit of three to six birds, increasing to 60 to 70 days and a bag limit of six per day. The population fluctuated for 20 years around 180,000, with a mean annual kill of 21,000. The January 1971 census revealed 151,000, but just one year later there were only 73,300, following a poor breeding year (5.7% young) and a shooting harvest of no less than 70,000. The 1972 summer was a complete breeding failure and the numbers had crashed to below 50,000 by January 1973. No shooting was permitted in 1972/73, or in the following two winters, and by January 1975 the population had recovered somewhat, to about 85,000.

It is not certain why the American shooters suddenly doubled their harvest, particularly in a year with few young, but it has been suggested that they transferred their attention to Brent Geese following a sharp drop in the number of Black Duck *Anas rubripes*, another favourite quarry species (R. Andrews *in litt.*). A shortage of food may also have brought the geese closer to the guns. The high mortality suffered in the following non-shooting year may have been due to many nesting adults being wiped out by the adverse weather conditions on the breeding grounds (Lynch and Voelzer 1974).

So, the North Americans, with their years of carefully controlled monitoring and harvesting behind them, can still find their predictions confounded by a combination of extremes of weather and kill. If we are not to fall into the same trap, any harvesting of the Dark-bellied Brent Goose must be very well thought out and carefully managed and monitored, with allowance for the unexpected. Only in this way can we ensure a reasonable prospect for the population, coupled with a minimum of conflict with other interests.

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SUMMARY

The world population of Dark-bellied Brent Geese *Branta bernicla bernicla* has increased from 16,500 in the mid-1950's to 110,000 in 1975/76. Britain and France are the most important wintering countries, with France increasing its share in recent years. Smaller numbers winter in the Netherlands, Denmark and West Germany. Within Britain, the most important haunts remain Foulness and other areas of the Essex coast, but the south coast harbours of Chichester and Langstone have greatly increased their significance in recent winters.

There is an unexplained correlation between annual breeding success, which is highly variable in this arctic nesting species, and annual mortality rate. Since 1971, the mortality rate has become steadier while breeding success has continued to fluctuate, though with a higher proportion of good years. The rapid increase in numbers in the last six years can be attributed partly to the latter and partly to the protection granted to the population in its winter range, in particular in Denmark in 1972. Predictions of likely future population size suggest either fluctuations around the present level or a continued increase.

Brent Geese are increasingly feeding inland of the sea-wall, on grass and winter wheat, particularly in Essex. Conflict with farmers has already arisen. Because

of this, it may be necessary to allow restricted shooting, in order to limit possible damage to crops. A system of licences is outlined and recommended, in preference to any kind of open season.

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British bird-photographers

19 Eric Hosking

Plates 41-46

Being by nature friendly and gregarious, Eric Hosking is probably as widely known, both nationally and internationally, as any British ornithologist. As a bird photographer he is pre-eminent and his pictures and books can be found in almost every country. It surprised nobody, therefore, that his autobiography *An Eye for a Bird* (1970) was an instant best-seller.

To earn international acclaim and to make a substantial living as a bird-photographer required not only the highest professional skills but an unflagging enthusiasm for his chosen métier. Moreover, bearing in mind that his career began in the depths of the depression of the early 1930's, it required an unusual degree of courage and self-confidence to embark on an enterprise which, at that time, offered the bleakest of prospects. Today, having won every worthwhile award and distinction in his chosen field, Eric remains what he has always been, modest, cheerfully unpretentious and proud of his Cockney background. Never completely satisfied with his own work, he goes on adding every year to his superbly indexed collection of pictures, which now approaches the quarter of a million mark. Servicing the demand for his photographs by the world's press and publishing houses is almost a full-time task, but his first interest is with the living bird and he is happiest when trudging, camera in hand, across wild country. His interest in conservation is well known and he has given generous assistance to the World Wildlife Fund and the Royal Society for the Protection of Birds.

For many years Eric was greatly in demand as a lecturer and broadcaster, finding no difficulty in filling London's Festival Hall. His lectures were not intended to be profound in content, but audiences responded warmly to his enthusiastic delivery and obvious enjoyment of his subject. However, when the constant travel and arduous preparation involved in lecture tours began to inhibit his field work, he wisely gave them up.

He has pioneered many of the technical developments from which bird-photographers benefit today. If a gadget to improve the performance of a camera does not exist, he invents it, experimenting patiently until it is perfected. From the photography of nocturnal birds with the aid of flash bulbs in the 1930's, he graduated to electronic flash, adapting a photo-electric shutter release so that the bird itself fired it when in the exact plane of focus. Thanks largely to his insistence with manufacturers, the originally heavy flash equipment was progressively reduced to today's miniaturised models.

An unforeseen bonus for ornithology emerged from electronic flash—the detail obtainable on the negative was so minute that food carried to nestlings could be accurately identified.

Eric Hosking's knowledge of cameras is encyclopaedic. Having progressed from an early box Brownie and a 1909 mahogany quarter-plate Sanderson field camera, he experimented with all the British, German and Japanese 35 mm cameras. Manufacturers competed for his endorsement. In 1966, when he and I were passing through Moscow, he spotted the new Russian 1000 mm mirror lens and immediately acquired one. Though critical of some of its technical aspects, he later demonstrated its capacity by successfully photographing an Ibex *Capra hircus* at a distance of a quarter of a mile in the rugged Kirthar mountains of Pakistan. He is, incidentally, a capable mountaineer and tree climber, in spite of the loss of an eye and the handicap of a permanently damaged foot.

Between 1955 and 1967, I was fortunate enough to be able to recruit Eric as principal photographer on nine major expeditions of ornithological exploration in various countries. There is no better opportunity, when the going is really arduous, for judging a man's character. Even when our vehicle was wrecked in the Jordan Desert, or when the U-2 'spy plane' incident resulted in our being temporarily sequestered behind the Iron Curtain in Bulgaria, Eric's cheerful disposition remained unruffled. Although never able to master any foreign language, he established an immediate rapport with the natives of every country we visited, whether they were frontier sentries, local princes, or bare-footed peasants. After a strenuous 16-hour day in tropical heat he would stay up half the night to repair someone else's camera by torchlight. He was generous, too, in many small ways, such as letting other members ride in the coveted front seats of our jeeps, or in lending his own precious equipment.

Although now widely travelled, Eric never permits foreign customs to interfere with his staunchly conservative personal habits. Official occasions, exalted titles, or opulence make no impression on him. For example, when members of our Pakistan expedition were invited by the Amir of Bahawalpur to dine at the magnificent Sadiq-gahr Palace, he simply ignored the formalities. Some choice French wines accompanied the elaborate meal. Eric, as a strict teetotaler, did not hesitate to demand his invariable beverage—tea, which the Amir obligingly ordered a liveried servant to produce. On another occasion in England, when Eric was chatting with a royal duke, he casually called him 'old boy'. Such is his personal charm that in neither of these incidents was the VIP in the least offended.

In the thirty years I have known him, I have seen him really angry only once. This was when he found a nest which had been heavily 'gardened' by a bird-photographer. His own code of conduct is strict and he refuses to attempt even a much needed picture if he judges that desertion might result. He will tie back an obscuring branch, but scrupulously restores both the nest vegetation and his own track to the nest-site.

The selection of Eric's photographs shown here typifies his work and range of interests. Four of them were obtained in Spain, in three different years, and two others also resulted from trips abroad, to the Netherlands and Norway. The Black Vultures *Aegypius monachus* (plate 42a) and Eagle Owls *Bubo bubo* (plate 45b) are two examples of species very rarely photographed at the nest. The other six were obtained in Britain, at some of his favourite spots: Minsmere, Suffolk, and Hilbre Island, Cheshire, where he has so often taken full advantage of the opportunities to photograph waders, and in the wilds of northern Scotland. Indeed, the Green-shank *Tringa nebularia* settling on to its eggs (plate 46b) was photographed in Sutherland as recently as June 1976.

There are many other ways in which Eric has contributed in his chosen field. For more than 16 years, from 1960 until June of this year, he was photographic editor of *British Birds*. He initiated the annual feature 'More examples of the best recent work by British bird-photographers', which has provided a showcase for his amateur and professional colleagues, and also the series 'British bird-photographers', in which he himself now appears here.

Eric's life is a full one. Photographer, ornithologist, technician, inventor, lecturer, broadcaster, author, foreign traveller, holder of high office in half a dozen societies, winner of a drawerful of medals and a happily married family man with a wide circle of friends. What more can life offer? In concluding this tribute I cannot do better than quote from HRH Prince Philip's foreword to Eric's autobiography: 'Anyone can see what marvellous pictures he takes and he has amassed a wealth of experience and knowledge, but no one could be kinder or more encouraging to beginners and to the amateur.'

GUY MOUNTFORT



PLATE 31. Above, Tamm's eagle (*Falco tinnunculus*) in nesting cave, Spain, May 1970. Below, female Snowy Owl (*Nyctale nebulosa*) with young, Scotland, June 1967. (photos by P. H. R.)





PLATE 42. Above, Black Vultures *Aegypius monachus* at nest, Spain, May 1972.
Below, female Marsh Harrier *Circus aeruginosus* at nest with young, Spain, May 1972
(photos: Eric Hosking).



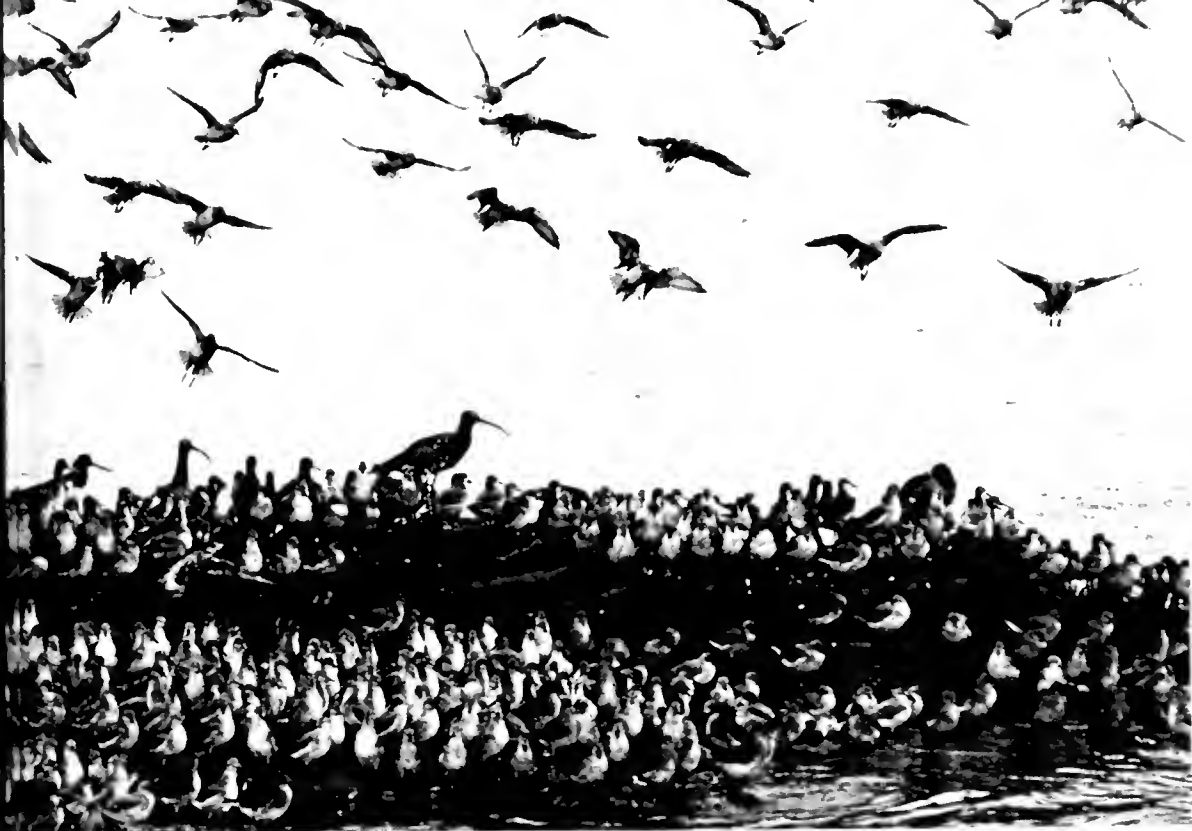


PLATE 13. Above, massed waders, mainly Knots *Calidris canutus*, but also Curlews *Numenius arquata*, Oystercatchers *Haematopus ostralegus*, Redshanks *Tringa totanus* and Bar-tailed Godwit *Limosa lapponica*, Hilbre Island, Cheshire, October 1960. Below, Spotted Redshank *Tringa erythropus*, Minster, Suffolk, early August 1960
photos: Eric Hosking





PLATE 44. Above, Grasshopper Warbler *Locustella naevia* at nest with young, Suffolk, June 1953. Below, male and female Little Bitterns *Ixobrychus minutus* at nest, Netherlands, June 1952 (photos: Eric Hosking)





PLATE 45. Top, Little Egret *Egretta garzetta* at nest, Spain, May 1956. Bottom, Eagle Owl *Bubo bubo* at nest with young, Norway, May 1964. (Top: *T. H. H. H.*)

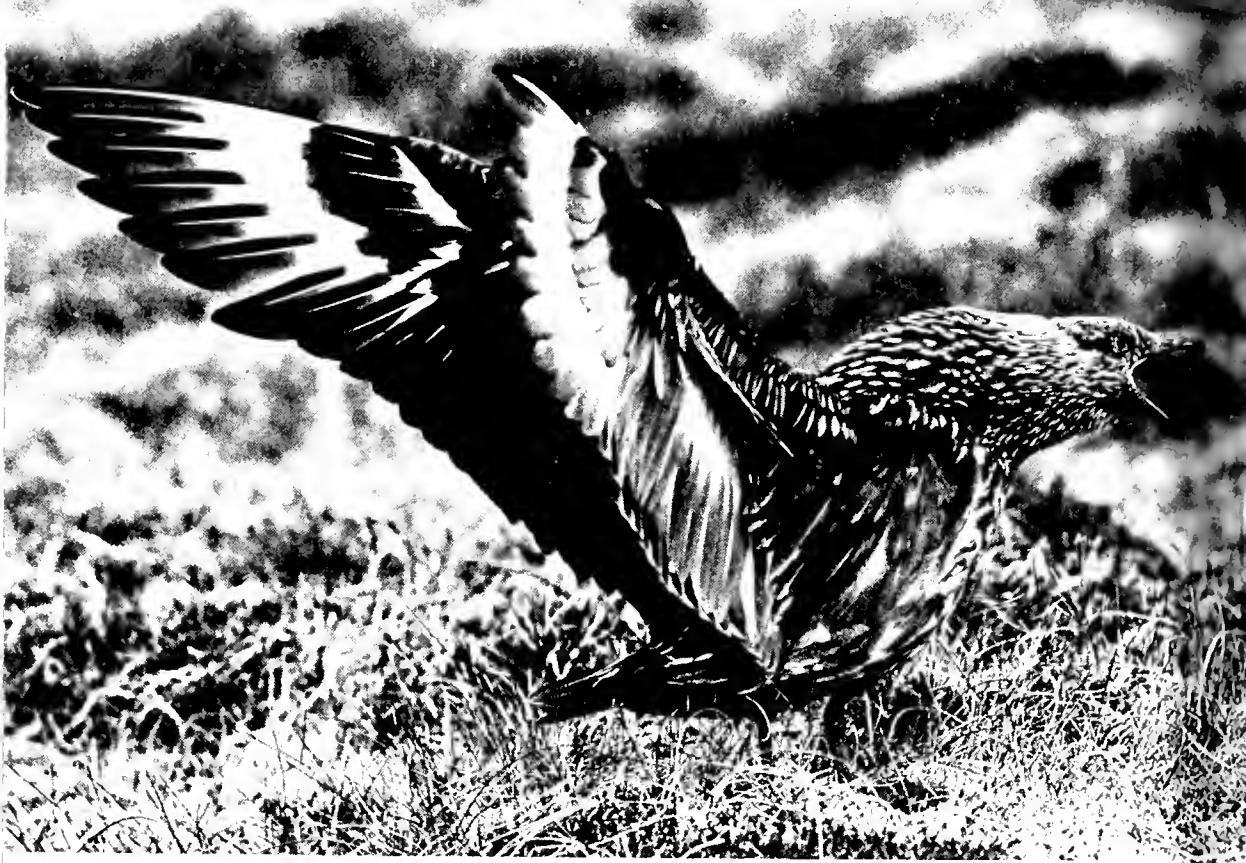


PLATE 46. Great Skua *Stercorarius skua*, Shetland, June 1963 (photo: Eric Hosking).



Greenshank *Tringa nebularia* settling on to eggs, Sutherland, June 1976 (photo: Eric Hosking).



PLATE 47. More 1975 rarities
pages 321-368. Top, Desert
Warbler *Sylvia nana*, Humber-
side, October (photo: K. Atkin).
Bottom left, Lesser Yellowlegs
Tringa flavipes, Devon, Nov-
ember; right, Black-and-
White Warbler *Mniotilta varia*,
Scilly, September (photos: Nigel
Tucker).

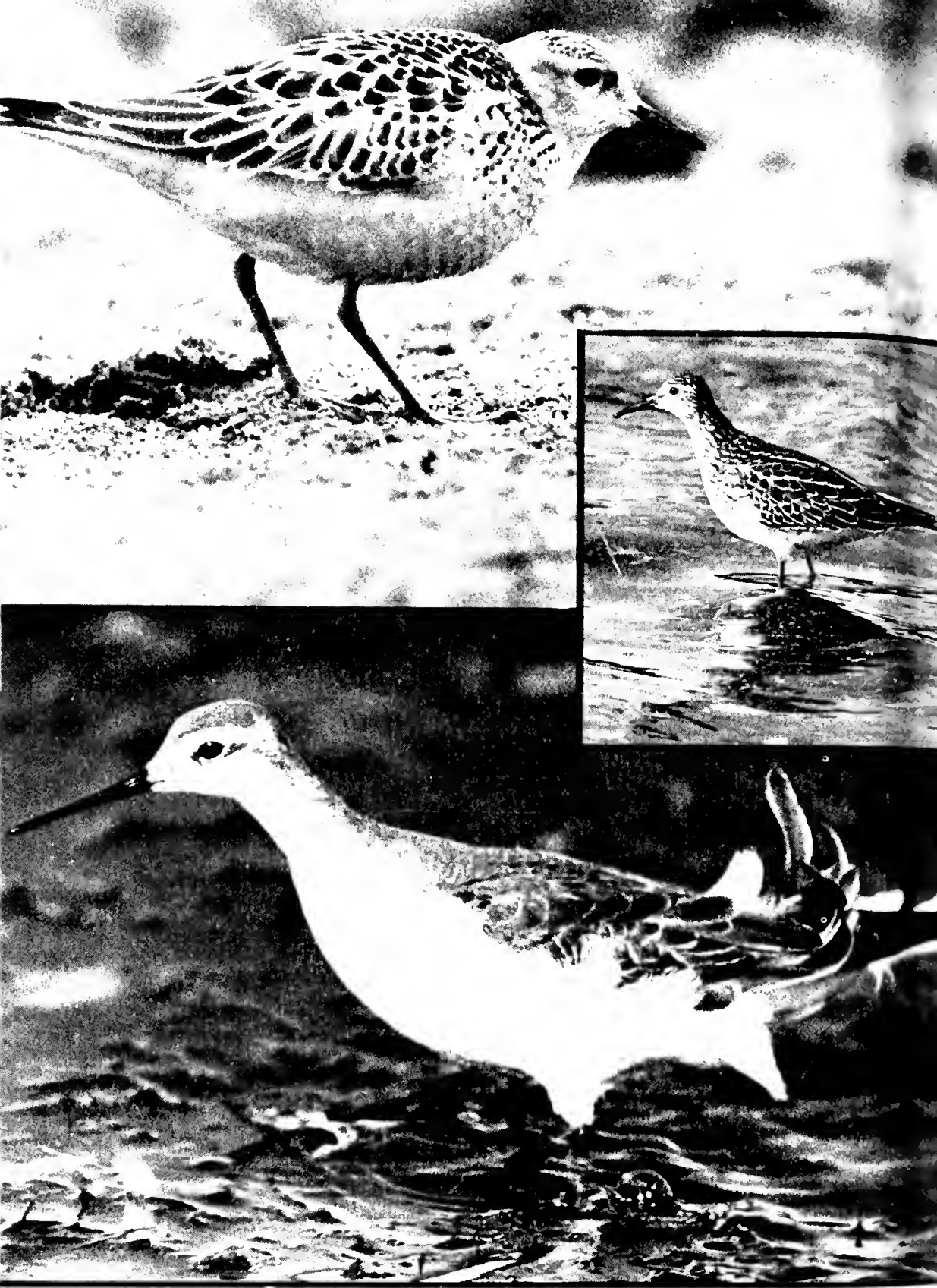


PLATE 48. Three American waders. Top, Buff-breasted Sandpiper *Tryngites subruficollis*, Cambridgeshire, September 1975, one of an unprecedented 60 or more reported in that autumn (pages 338-339) (photo: Howard B. Ginn). Centre, Pectoral Sandpiper *Calidris melanotos*, Scilly, October 1970, the most frequent Nearctic species in Britain and Ireland (photo: K. Atkin). Bottom, Wilson's Phalarope *Phalaropus tricolor*, Ballycotton, Co. Cork, September 1974 (photo: Richard T. Mills).

Sora Rail in Scilly and the identification of immature small crakes

D. I. M. Wallace

The immature Sora Rail *Porzana carolina* present on St Agnes, Isles of Scilly, from 26th September to 9th October 1973 (*Brit. Birds*, 67: 320; *Scilly Bird Report for 1973*: 19-21) was the first to be recorded in Europe since 1920. The record was accepted by both the Rarities Committee and the Records Committee of the British Ornithologists' Union, and the species was once again listed in category A of the British and Irish list (*Ibis*, 116: 578). This short paper, which stems from the decision to publish in this journal the details of records that result in category promotion, also includes some comparative notes on immature small crane identification.

DETAILS OF THE SORA RAIL IN SCILLY

The bird was first seen in the rushes of the Big Pool by D. Smallshire, but early opinions on its identity were hopelessly divided. DS, A. R. Dean and B. R. Dean persisted in seeing slight but distinct differences from the closely related Spotted Crane *P. porzana*, the species to which others ascribed the bird on the basis of its noticeably buff undertail. The literature available at the time implied that this was a character only of the Spotted Crane and the controversy might have remained unresolved but for the arrival of fresh, open-minded observers, some already familiar with Sora Rails. A phone call from DS to DIMW on 7th produced redoubled efforts at identification. Close attention had already been paid to the bird by B. D. Harding on that date, and many other observers, notably D. S. Flumm, H. P. K. Robinson and M. J. Rogers, watched for it on 8th and 9th. By concentrating binoculars and mounted telescopes on several patches of open mud over which the crane regularly strayed, uninterrupted views at ranges down to 15 metres and totalling 45 minutes were achieved. The following description summarises four separate sets of field notes:

Size between Water Rail *Rallus aquaticus* and Little Crane *Porzana parva* (both alongside the Sora on 9th); close to Spotted Crane, but with longer tail, perhaps more bulk or rotundity head-on, with longer and deeper bill. Bill greenish or brownish ochre, with distinct yellow surround to base; eyes dull brown; legs and feet dull ochraceous-green. Head strongly marked: crown rufous with noticeable black central stripe, forming striking pattern head-on; superciliary area buffy-grey, short streak over and behind eye bright white (very conspicuous at close range); ear-coverts greyish with faint, blackish stripe to rear of eye (drooping at the end) and obvious patches between eye and base of bill, fully black on right, but speckled grey on left. Throat whitish

with narrow black 'furrow' in centre, ending in tiny black bib (above neck crease). Nape greyish-brown; back strikingly patterned with at least four lines of distinctly marked feathers, each brown with blackish centre and white fringes, forming obvious lines head-on, and the rear four or five speckled white; rump blackish-grey; uppertail-coverts brownish-grey. Wing-coverts dull, 'oily' tawny, forming uniform patch in mid-body, with only inner greater coverts speckled white and fringed black; flight-feathers dark brown. Chest sides greyish, with lines of grey and buff mottling; front flanks greyish-buff with white spots, rear flanks deeply barred with dull black, grey and white with top edge white and some general buff mottling. Vent brown, flecked whitish; undertail-coverts warm buff, fading on longest to plain buffy white. Almost white under tail end (visible when flicked in alarm). At distance, in dull light, looked very similar to Spotted Crane, but, in good light, appeared noticeably paler on foreparts. Character also different, showing more neck and often standing up like Water Rail; movements on ground easy (with noticeable 'dread runs' to cover); flight apparently stronger than most small crakes. Quite tame and not shy, feeding on open mud for up to four minutes. Silent.

Comparing these details with the description in Witherby *et al.* (1941), all the observers involved in a particularly concentrated watch on 8th October concluded that the bird was an immature Sora Rail in moult to first-winter plumage and that the apparent discrepancy of the undertail colour was unimportant. Opponents of the earlier claims became converted on the following day, and both review committees accepted the record without query.

IMMATURE SMALL CRAKE IDENTIFICATION

Given hindsight, it is clear that the controversy over the St Agnes Sora Rail owed most to the dangerous compression of field guide texts, in which the few lines simply lacked the detail necessary for correct identification; one plate (Robbins *et al.* 1966) contained a totally misleading illustration of a young Sora Rail. The rest of this paper is, therefore, devoted to specifying the crucial characters in the field identification of immature small crakes. It is written in the hope that fewer seconds (and most glimpses of small crakes are so timed) will be wasted in future.

It is usual to group the four small crakes into two pairs, the Spotted

Table 1. Measurements in mm of Spotted Crane *Porzana porzana*, Sora Rail *P. carolina*, Little Crane *P. parva* and Baillon's Crane *P. pusilla* (after Witherby *et al.* 1941 and American/Canadian literature)

	Wing (♂♀)	Tail (♂)	Tarsus (♂)	Bill (♂♀)	Total length
Spotted	109-125	43-49	30-37	16-21	230
Sora	98-117	46-53	30-38	18-22	215
Little	95-110	50-57	28-32	16-19	190
Baillon's	83-95	38-46	27-29	15-18	180

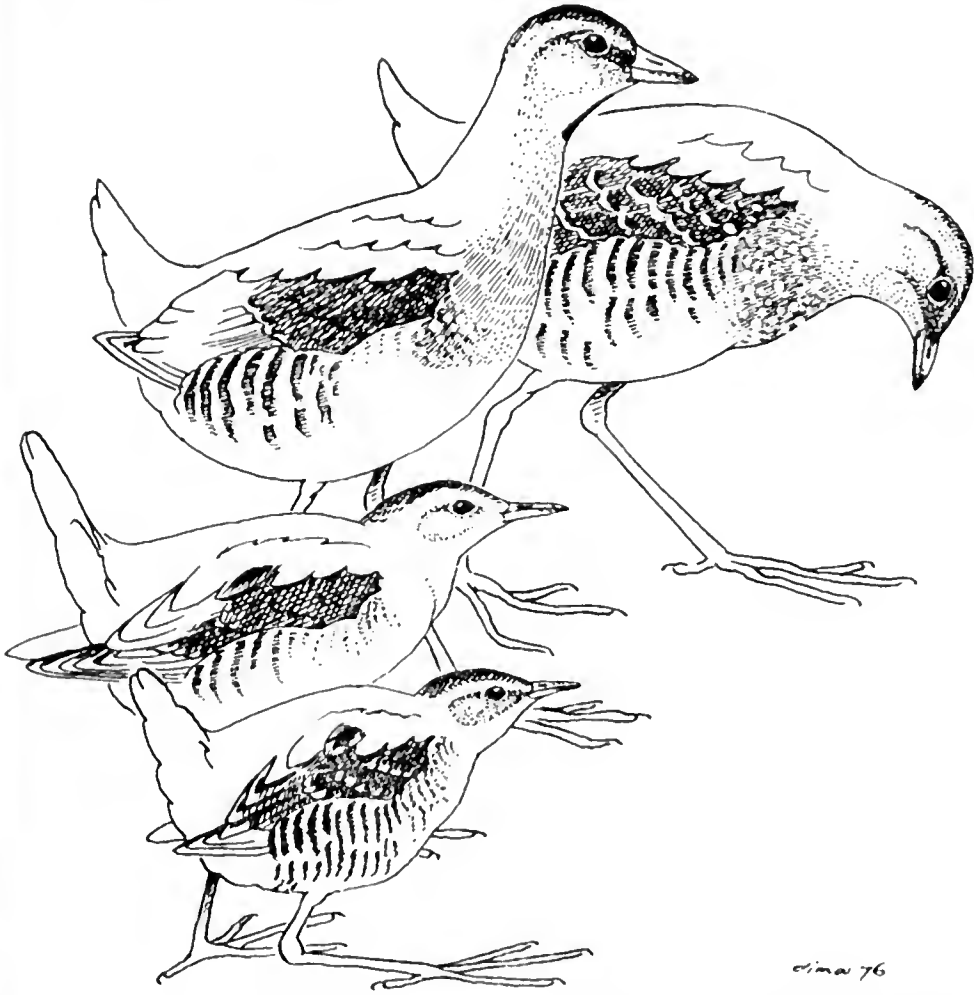


Fig. 1. Important characters of small crakes in immature plumage. Top right, Spotted *Porzana porzana* with red base to upper mandible, fully spotted chest, complete flank barring and white flecks on wing-coverts. Top left, Sora Rail *P. carolina* with heavy yellow bill, strong crown pattern, white throat (with black division in first winter), mainly buff chest, rear flank barring and virtually uniform wing-coverts. Centre, Little *P. parva* with lightly barred flanks, virtually uniform wing-coverts and long wing point. Bottom, Baillon's *P. pusilla* with completely and heavily barred flanks, white flecks on wing-coverts and short wing point. All plumages as in early October

Crake with the Sora Rail and the Little Crake with the Baillon's Crake *P. pusilla*, and to stress that the latter pair are much smaller. The true size order is demonstrated in table 1. The marked overlap of wing and tail lengths in the first three species should be noted; it is only Baillon's that is really a 'tiny runner' (though all four and also the ubiquitous *Water Rail* can appear to be so). Other structural differences are the long wing point and tail of the Little compared with the Baillon's Crake's short wing point and tail, and the heavy bill of the Sora.

Table 2. The diagnostic plumage characters of immature Spotted Crake *Porzana porzana*, Sora Rail *P. carolina*, Little Crake *P. parva* and Baillon's Crake *P. pusilla*

	SPOTTED	SORA	LITTLE	BAILLON'S
Crown	Greyish-brown with darker mottling	Chestnut, with black centre		
Lores		<i>First winter:</i> increasingly mottled black		
Rear eye-brow		Bright white		
Face	Pale grey	Buffy-grey	Buffy-white	Rich buff
Throat	Pale grey, with darker streaks	<i>Immature:</i> white unmarked; <i>first winter:</i> white with black dividing line (difficult to see)		
Wing-coverts	Greenish-brown, with many white flecks	Uniform tawny-brown, with one line of white flecks	Uniform olive-brown, with one line of white flecks	Warm brown, with several lines of obvious white flecks
Back			Olive brown	Rufous-brown
Underparts	Brown, grey and white, with many white spots over whole chest and strong barring over all flanks	Pale buff and white, with few white spots on greyer chest sides and obvious barring only on rear flanks	Pale buff and cream with faint mottled lines and dusky bars on rear flanks	Buff and white, with distinct brown lines down foreflanks and many blackish bars on rear flanks
Undertail	Buff	Warm to pale buff, with longest feathers white (most obvious from behind)		
Outer edge of wing				White (edge of bastard wing and outer web of first primary)
Bill	Yellowish-green, with orange or red base to upper mandible	Wholly greenish-yellow	Wholly greyish-green, or with orange base to upper mandible	Wholly greyish-green
Legs	Olive-green	Green	Green	Dull flesh, tinged grey or yellow

Overlaps also occur in the plumage characters of the four species, but table 2 isolates the diagnostic marks, which are also shown in fig. 1. The successful identification of an immature small crake rests mainly on the precise observation of size, structure, bill colour, wing-covert markings and underpart patterns.

ACKNOWLEDGEMENTS

I am grateful to A. R. Dean and the members of the Rarities Committee for their comments on an early draft of this paper.

SUMMARY

The identification of the first Sora Rail *Porzana carolina* to be recorded in Europe for 53 years was initially made difficult by reference to inadequate literature, which implied that its undertail should have appeared white when, in fact, its colour is very similar to that of the Spotted Crake *P. porzana*. To prevent future confusion, a detailed description is given of the bird in question. This is followed by brief comparisons of the sizes and diagnostic characters of these and the other two small

crakes, Little *P. parva* and Baillon's *P. pusilla*, in immature plumages. Witherby *et al.* (1941) remains a fully adequate reference for observers troubled with small crakes; its detailed plumage descriptions are unsurpassed.

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Apparent hybridisation of Firecrest and Goldcrest

F. K. Cobb

From 20th to 29th June 1974, a male Firecrest *Regulus ignicapillus* was seen regularly, singing strongly but evidently without a mate, in a wood in east Suffolk. The area had not been visited for some time before 20th June, so that it is not known how long he had been present. The wood covers some 10 ha and is mainly deciduous, comprised of oaks *Quercus robur*, sycamores *Acer pseudoplatanus*, and silver birches *Betula pendula*; there is also, however, a scatter of European larches *Larix decidua* and Scots pines *Pinus sylvestris*, with an occasional Norway spruce *Picea abies*. Apart from the silver birches, most are mature trees.

The Firecrest sang usually from any one of about a dozen Scots pines scattered over half to three-quarters of a hectare. There was also a single Norway spruce some 18-20 metres high in this area, which was sometimes used as a song post, but the bird showed no preference for it over the Scots pines. He fed mainly in the surrounding deciduous trees, but was never heard to sing from them. The possibility of an incubating female was considered, but, as the male showed no preference for any particular tree, this was thought unlikely.

Then, on 30th June, G. J. Jobson saw the Firecrest with another *Regulus* in the Norway spruce and, later that day, D. J. Pearson and J. G. Rolfe watched this second bird carrying a feather in the same tree. No one obtained good views of it, but, not unnaturally, all assumed that it was a female Firecrest. On 1st and 2nd July, I

watched numerous visits by the female carrying material, and located the nest site in a hanging spray 12 metres or more up in the spruce. On every visit, she was accompanied by the male Firecrest, who sang while she built. Clear views were obtained of both birds on many occasions, but I could only conclude that the female had the poorest markings of any Firecrest I had ever seen, with no sign of an eye stripe. Viewing from below, however, with the birds high above my head, was very difficult and I still assumed that she was also a Firecrest.

On 3rd July, the male was singing strongly in the spruce, but the female was not observed; presumably the nest had been completed. From then until 23rd July, she was seen only occasionally, as was to be expected during incubation. The male at first continued singing strongly, and always from the nest tree, but his output began to weaken noticeably in both frequency and duration from 6th July, until on the 9th he was singing very little. No song was heard after that date—only the occasional call. On 23rd July, both were seen taking food into the nest and, then and subsequently, it was possible to obtain more satisfactory views of the female. All the observers concerned (who are listed in the acknowledgments on page 450) were satisfied that she was a Goldcrest *R. regulus*.

The behaviour of the adults when feeding the nestlings calls for comment on only one point. The female was much the more timid in her approach to the nest, moving cautiously from bough to bough until she disappeared into the spray where the nest was situated. In contrast, the male almost invariably flew straight in boldly. Likewise, if both coincided in their arrival, she always held back to allow him through, even if she had arrived first and was on the approach to the nest. The clear impression received was that the Firecrest was dominant, although whether this difference in behaviour was sexual or specific is not known.

On 9th August, two or three young were seen out of the nest; they wing-flapped for a few minutes before returning to it. On 10th August, D. R. Moore and I saw at least five young huddled together under the canopy beneath the nest. Both the male Firecrest and the female Goldcrest were watched feeding them. Although a telescope was used on the young, it was not possible to discern their head markings, but it is doubtful whether eye stripes, if present, would have been visible under the dark canopy. By that evening, there was no sign of any of the birds in the tree and they were not seen again.

DISCUSSION

The evidence indicates hybridisation between a Firecrest and a Goldcrest, but there appears to be no previous record of this

(L. A. Batten *in litt.*). Voous (1960) stated that in Europe these two *Regulus* behave as siblings (closely related species that are reproductively isolated, thus able to inhabit the same area without interbreeding). The standard work on bird hybrids (Gray 1958) contains no reference to them, though it does cite Ackermann (1898) and Cockrum (1952) for evidence of hybridisation between two North American members of the same genus, the Ruby-crowned Kinglet *R. calendula* and the Golden-crowned Kinglet *R. satrapa*. It is necessary, therefore, to consider whether any other hypothesis would fit the facts.

Kenneth Williamson (*in litt.*) has suggested that the Goldcrest could conceivably have laid eggs already fertilised by a male Goldcrest which then died, leaving her in a physiologically reproductive state in which she was taken over by the unmated male Firecrest. This, however, seems rather unlikely. Many passerines, perhaps most, do not copulate until nest building has at least begun and often been completed. This is true of, for example, Marsh Tits *Parus palustris* (Morley 1949), Robins *Erithacus rubecula* (Lack 1943), Reed Warblers *Acrocephalus scirpaceus* (Brown and Davies 1949), Graceful Warblers *Prinia gracilis* (Simmons 1954), Hawfinches *Coccothraustes coccothraustes* (Mountfort 1956), Canaries *Serinus canarius* (Hinde 1955) and Chaffinches *Fringilla coelebs* (Newton 1972). If it applies also to Goldcrests, then this particular female, assuming that she had previously been fertilised by a male Goldcrest who subsequently died, must have already started or even completed a nest in some other part of the wood and then been attracted into the territory of the male Firecrest, where she built a second nest.

At the time when the male Firecrest was in full song, Goldcrests were singing strongly in other parts of the wood: this was presumably between first and second broods, for their singing ceased at approximately the same time as did that of the Firecrest, and so there is also the possibility of the female switching to a new mate between broods, but otherwise the same objections apply. It should be added that no Goldcrest was ever heard singing in the Firecrest's territory and the only occasion on which the species was seen there was when several, thought to be juveniles, spent a few minutes feeding in the nest tree.

It is well known that unmated males and other non-breeding birds will sometimes help with the feeding of nestlings of their own or another species, but in this case the Firecrest behaved as the true male parent, from nest building right through incubation to the fledging of the young. Thus, it seems clear that a pair was formed, though, even if copulation had been seen, it would not have proved successful hybridisation. I have suggested above that mating, if it

occurred, had probably taken place between the Firecrest and the Goldcrest during or immediately after nest building; but, since there is no way of telling which copulation actually achieves fertilisation of the female, it would not have disproved the possibility of the female having already been fertilised by a male of her own species, as discussed above. The only absolute proof of hybridisation would therefore have been by the offspring showing some characteristics of the Firecrest; unfortunately, it was impossible to ascertain whether or not this was so. Nevertheless, hybridisation seems much the most likely interpretation of the facts.

Firecrests were first proved to have bred in England in 1962, when a nest was found in the New Forest, Hampshire, after a number of singing males had been seen there in that year and the previous one (Adams 1966). The New Forest population reached a peak of 27 singing males in 1969, and from 1968 there were observations of a few in other counties (Batten 1971). By 1972, as many as 43 males were found singing or holding territories in six English counties north and west to Lancashire (Batten 1973). This colonisation of England corresponds with a considerable spread on adjacent parts of the Continent, affecting France, Belgium, the Netherlands, Denmark and north Germany, while in Czechoslovakia the species has become more numerous than the Goldcrest (Batten 1973).

In such conditions of spread, it is likely that male Firecrests will find themselves in new areas without mates and then hybridisation may well occur occasionally. Unfortunately, while the singing male Firecrest may be relatively easy to locate and identify, the females of both species are often hard to watch in the dense cover of conifers. Difficult as the pair in Suffolk were to see, they were at least in a single, slightly isolated spruce. Careful observation would clearly be necessary to eliminate the possibility of hybridisation in the more typical habitats of a solid row of conifers or a continuous plantation.

ACKNOWLEDGEMENTS

I should like to thank the following for allowing me to use their observations: G. L. Clarke, G. J. Jobson, D. R. Moore, D. J. Pearson, J. G. Rolfe, C. J. Shackles and C. S. Waller. CSW watched the birds throughout and it was particularly stimulating to be able to discuss hybridisation and other possibilities with him. I am also most grateful to L. A. Batten for his comments on a draft of this paper.

SUMMARY

In 1974, in an east Suffolk wood, a male Firecrest *Regulus ignicapillus* and a female Goldcrest *R. regulus* reared at least five young to fledging. Although absolute proof of hybridisation was not obtained, the evidence for this was very strong; other possibilities are discussed. Apparently there is no previous record of hybridisation between these sibling species, but, with the spread of the Firecrest into areas previously occupied only by Goldcrests, it is suggested that the possibility of further such cases should be borne in mind.

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F. K. Cobb, Martins, Eastbridge, Leiston, Suffolk

Notes

Trembling movements of House Martin when nest-building

On 6th June 1975, near South Gorley, Hampshire, I watched at close range with binoculars a House Martin *Delichon urbica* building its nest, which was in the early stages of construction. The nest was situated below the eaves of an old thatched cottage at a height of three metres from the ground. I noticed that, when the martin placed and held in position with its beak a mud-pellet, its head and body trembled violently for about three seconds. These movements ceased when the bill was carefully withdrawn. On 10th June, I visited the site again and noted the same movements each time mud-pellets were added to the nest.

HUBERT E. POUNDS

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This behaviour, although not widely recorded, is quite normal. It is apparently similar to the quivering or trembling movements used by most species of birds when attempting to fix material in place, at least during some stage of nest building. Eds

Blackbirds nesting in disused Magpie nest On 11th May 1975, on a moor at Mochrum, Galloway, I found that Blackbirds *Turdus merula* had built a nest in a disused nest on a pair of Magpies *Pica pica* in an isolated clump of sallows *Salix sp.* The Blackbirds had built a normal nest on top of the lining of the inner fabric of the Magpies' nest, the dome of which was still intact. The Blackbird laid a clutch of four eggs and on 27th May the nest contained four nearly fledged young. Apart from a few isolated hawthorns *Crataegus monogyna*, the sallows were the only trees there. R. C. DICKSON
3 Galloway Place, West Freugh, Stranraer DG9 9DT

Blackbirds evidently seldom adapt the old nests of other species. Bruce Campbell and James Ferguson-Lees (1972, *A Field Guide to Birds' Nests*) were able to cite only one similar record involving a Magpie's nest and that came from John Walpole-Bond's *A History of Sussex Birds* (1938: vol. 2: 78), where the details were given as between Berwick and Polegate, Sussex, on 11th May 1929. Eds

Robins nesting in disused Blackbird nest In 1975, in my garden in a built-up part of Ipswich, Suffolk, a pair of Blackbirds *Turdus merula* nested about two metres up in the centre of a yew *Taxus baccata* in the midst of shrubbery. Three young left the nest at the end of April. In May, a pair of Robins *Erithacus rubecula* built a nest among a large pile of shrub and rose cuttings, but this was unsuccessful owing to disturbance by a cat. In the last week of June, I noticed that the Blackbirds' nest looked very fresh and, on examination, found that the Robins had built a nest inside it. This was successful and three young fledged. Neither *The Handbook* nor Bruce Campbell and James Ferguson-Lees (1972, *A Field Guide to Birds' Nests*) made any reference to Robins nesting in the disused nest of another species. L. T. BLOOMFIELD

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Slate-coloured Junco in Kent During the early morning of 26th May 1960, I was mist-netting Linnets *Acanthis cannabina* along the bank of the Dengemarsh sewer at Dungeness, Kent, when my attention was attracted by an unfamiliar song, which I described at the time as 'a short twittering trill—rather sweet'. In the field, the bird (although obviously a finch) showed characteristics of three species: it had the gait and feeding behaviour of a Robin *Erithacus rubecula*, the tail and flight of a wagtail *Motacilla sp* and the general colour of a male Black Redstart *Phoenicurus ochruros*.

Its flight was strong and undulating, while, on the ground, it hopped and fed like a Robin or Dunnock *Prunella modularis* under-

neath clumps of gorse *Ulex europaeus* and thistles *Cirsium/Carduus spp.*, regularly flicking its comparatively long tail, which it carried rather high. It regularly perched on small clumps of vegetation and a wire fence, frequently uttering a short, quiet, single call-note, 'tic'.

The most striking character was the generally dark grey plumage, looking almost black around the head, but paler and browner on the wings. In great contrast, the surprisingly pale bill showed up clearly and looked white against the head. The pale off-white belly and vent region was more noticeable in flight than when the bird was feeding on the ground. Extensive white in the outer tail-feathers was particularly noticeable when it flicked its tail, as it did regularly when feeding on the ground, where a long-legged appearance was also apparent.

With the assistance of C. J. Booth, the bird was driven into a mist-net and was subsequently identified as a Slate-coloured Junco *Junco hyemalis*, the second record for Britain and Ireland (the first was in Co. Clare in May 1905). It was also seen in the hand by D. L. Court. It was then examined at the observatory and sexed as male. The following details were noted. Weight 18.0 g (06.00 hours), wing 78 mm, bill 12 mm, tarsus 24 mm, tail 67 mm. Wing formula: 1st primary minute, 3rd and 4th equal and longest, 2nd shorter by 6 mm, 5th by 1 mm, 6th by 2.5 mm, 7th by 6 mm, 8th by 9 mm, 9th by 11 mm and 10th by 13 mm. Plumage: upperparts darkish slate-grey, slightly darker over head, nape and lesser coverts, but rump and back with lighter edgings; wings and tail dark brown-black, flight-feathers with browner outer webs; white outer webs to outermost four tail feathers; underparts mostly white, but breast and flanks dark slate-grey, undertail dark grey, underwing silver-grey. After ringing, the bird was released and was not seen again.

R. E. SCOTT

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As well as establishing the evidence for the particular record, short notes on occurrences of extreme rarities provide a useful source of information on identification criteria, expanding that available in the field guides. We, therefore, hope to publish details of all such records in future, and also those that have accumulated in recent years. This 1960 Slate-coloured Junco, at first generally regarded as an escaped cage-bird, was accepted as the second British and Irish record in 1971 (*Brit. Birds*, 64: 367-368), when it became clear that a pattern of vagrancy in May was being established. Eds

Review

The Birds of Dublin and Wicklow. Edited by Clive Hutchinson. Irish Wildbird Conservancy, Dublin, 1975. 132 pages; 12 black-and-white photographs; 13 maps and diagrams. £1.75.

A book dealing with the birds of a county or region must satisfy the needs of residents in the area, and potential visitors, as well as those who wish to use it mainly for reference. On every count, this book is a success.

Over half of the book is taken up by a systematic list of the 276 species of birds recorded in the two counties up to 31st December 1973. Compiled by the editor, this is well balanced, with, for instance, an average of 16 lines devoted to each of the six commoner thrushes, but only one line to American Robin. Unlike many such lists, this one makes interesting reading. Twentieth century records of species recorded on five or fewer occasions are listed in full, but earlier records are summarised 'because they are readily available in the literature': this is the only way in which the list fails to be comprehensive. Half-monthly totals of records and breeding distributions within 10-km squares are shown by histograms and maps for 23 of the most interesting species.

Preceding the systematic list, there are chapters by four authors, as well as the editor: these deal with the physical features and habitats of the area (R. N. Goodwillie); the birds of the three most interesting habitats, the uplands and mountains (G. C. Noonan), the seabird colonies (J. M. Rochford) and the estuaries and tidal marshes; the passage of seabirds (R. F. Rutledge); and a historical review of the ornithologists who published accounts of the area in the past, from John Ruddy in 1772 to the present day. These chapters vary in style from the lyrical to the strictly factual, but each fulfils its purpose admirably. As a reader who loves Ireland but who knows only a few of the localities mentioned, I found myself wanting to explore this diverse region more fully. Not only are the habitats and their birds well—and often evocatively—described, but details of access are clearly given in most cases.

Though some are larger, I know of no better account of the birds and habitats of a region. This book is attractively presented and the photographs are well reproduced, as well as being relevant and informative; the editor, the authors and the IWC are to be congratulated on producing a book that I recommend to anyone who has the slightest interest in Irish ornithology.

J. T. R. SHARROCK

Letters

The Coto Doñana In 'News and comment' in April 1966 (*Brit. Birds*, 59: 163-164), it was announced that H. E. Axell, then warden of Minsmere, Suffolk, had been seconded for two months by the Royal Society for the Protection of Birds to the reserve on the Coto Doñana, Spain, 'to advise and instruct the guards there in the problems of management, including the building of hides, the placing of paths and trails, and the guidance of visitors'.

Miss Helen Fisher and I visited the Coto Doñana in the first week of June 1976. Although we did manage to see a number of the species we had hoped to, and it is still a very exciting place, we were intensely disappointed and concerned by what we found. Briefly, and principally, that was:

- (1) No ordinary visitors are allowed to walk anywhere except within the immediate vicinity of the Palacio. There are no paths or trails for the use of visitors.
- (2) The only authorised way of moving about the reserve is in a noisy and bumpy Land Rover, driven by one of the guards, which leaves in its wake clouds of dust. The guards are uncommunicative and disinterested. The charge is ten pesetas per kilometre per person. The incentive is, therefore, not surprisingly, to cover distance rather than to observe birds and other animals.
- (3) There are hides, but we were unable to use any: they are built on stilts with access by ladders, but none had a floor.
- (4) Through the kind intervention of a member of the sparse professional ornithological staff, we were allowed to use a superb observatory above the laboratory, though its existence had not previously been known to us and, indeed, the path to it was barred by a gate with a notice declaring access to be prohibited.
- (5) The young lady who was supposed to look after visitors was away when we arrived. When she returned, although apparently sympathetic to our requests, she had no real appreciation of the requirements of serious birdwatchers.
- (6) Outside the Palacio, there were a number of cages containing Pardine Lynxes *Felis pardina*, Wolves *Canis lupus*, Mongooses *Herpestes ichneumon*, an Eagle Owl *Bubo bubo* and a Buzzard *Buteo buteo*. The last of these may have been injured, and the Eagle Owl may possibly be used sometime in the future in an endeavour to establish the species within the reserve, but we could see little point in caging the mammals, other than to provide a small zoo for day-trippers.
- (7) We saw no information on display to help Spanish visitors to understand the purpose of the reserve. A party we talked to,

who were not naturalists, obviously expected some sort of zoo and were consequently disappointed. In our view, it is highly desirable that ordinary visitors should be made fully aware of the reserve's purpose and be given some help in the identification of its wildlife, along the lines of reserves in other countries.

- (8) There was a visitors' book in the Palacio. Although there were, of course, appreciative comments relating to the exciting wildlife, I have never seen such a collection of virulent complaints, written by naturalists from all over the world. It made very sad reading.

We fully understand that there are many endangered species in the reserve, which would suffer from disturbance and which must be zealously safeguarded. We are of the view, however, that considerable improvements could be made to afford better facilities for serious observers, without disturbing the wildlife at all, and taking into account the particular needs and problems of the Coto Doñana, as no doubt originally suggested by Mr Axell.

In addition, and more importantly, we were dismayed to hear of threats to the reserve's continued existence. A motorway or major road may be built along the coast, the marismas that surround the reserve, and which are its life blood, are being drained in places, birds such as the Crested Coot *Fulica cristata* are still being shot in some numbers, and the Imperial Eagles *Aquila heliaca* may have decreased from four breeding pairs in 1975 to two pairs in 1976. Support, advice and money are clearly urgently required. The problem is primarily one for the Spanish government and people. We consider it vital, however, to bring the problem to the attention of British naturalists, in the hope that, together with the Spanish government and the World Wildlife Fund, we can ensure a flourishing future for this unique wilderness.

RICHARD PRICE

9 Hauteville Court Gardens, Stamford Brook Avenue, London W6

E. M. Nicholson, who was closely involved in the recommendations and negotiations which led to the purchase and establishment of the Coto Doñana reserve, has commented as follows: 'It is sadly indisputable that visitors to the Coto Doñana have lately been suffering in such ways as Mr Price describes. The whole matter is under urgent review, and a communication from a number of leading British ornithologists, relating to the all-important points raised in the last paragraph, was sent in spring 1976 to the Spanish ministers responsible. The reserve's director, Dr Javier Castroviejo, has been invited, under the auspices of the British Council, to visit Britain this autumn to study methods of managing reserves and handling visitors, and to discuss the kinds of help which he urgently needs to relieve a situation as intolerable to him as it is to his

visitors. Meanwhile, it should be noted that one successful result of Mr Axell's visit has been the creation of two large ponds in front of the Palacio, which have attracted Marbled Ducks *Marmaronetta angustirostris*, Purple Gallinules *Porphyrio porphyrio* and other rare species, where they can be freely seen by all visitors. Despite its distressing teething troubles, the reserve is largely succeeding in maintaining the Coto Doñana's wealth of wildlife in the face of formidable pressures, and this, after all, is the vital point.' EDS

Proof of breeding Dr Bruce Campbell very properly drew attention (*Brit. Birds*, 69: 277) to the need 'for some definition of "breeding" in respect of egg-laying animals', but he cited only the *Concise Oxford Dictionary* and the *Penguin English Dictionary*. May I suggest that the ultimate authority, the *Oxford English Dictionary*, from which *COD* derives, should be consulted. There the primary definition is:

'Said of a female parent: To cherish (brood) in the womb or egg; to bring (offspring) forward from the germ to the birth; to hatch (young birds) from the egg; to produce (offspring, children).'

There can surely be no doubt that the presence of infertile eggs, whether laid by a bird which has or has not a mate, does not provide evidence of breeding? 'Nesting' is not synonymous with 'breeding': many birds make nests in which eggs are never laid. 'Unsuccessful breeding' is nonsense: young birds cannot be hatched unsuccessfully from eggs—they either hatch or they do not. There could be evidence of the laying of fertile eggs that did not hatch, for example because the chick died in the egg, but this would constitute 'attempted breeding'.

E. J. M. BUXTON

Cole Park, Malmesbury, Wiltshire

Swallows nesting in old nest of Robins Although you were not able to find a past record of Swallows *Hirundo rustica* nesting in an old nest of Robins *Erithacus rubecula* (*Brit. Birds*, 68: 247), there is a 1961 record (54: 327) over my name. ANDREW T. MACMILLAN
20 Garscube Terrace, Edinburgh EH12 6BQ

Request for information

Wing-tagged Goosanders About 270 young Goosanders *Mergus merganser* have been trapped and ringed in Northumberland in recent years. In 1976, in addition to ringing, wing-tagging was started. Details of any sightings of wing-tagged Goosanders will be gratefully received, and details of marking sent by return. Please inform **E. R. Meek, 7 Shaftoe Way, Dinnington, Northumberland.**

Announcements

Line drawings

The covers of the twelve issues of volume 70 of *British Birds* will feature line drawings instead of photographs. We shall welcome submission of sketches by amateur and professional artists alike. We also intend to use more drawings in the main body of the journal, including at least one with most papers, and shall be pleased to have offers from artists to draw these as required, at relatively short notice. We regret that no payment can be made, but full acknowledgement will be given for those that are used. EDS

Black-and-white prints from colour transparencies

Many more colour than monochrome photographs of birds are now being taken, with the result that authors of papers and other contributors are finding it increasingly difficult to provide suitable black-and-white illustrations. Arrangements have, therefore, been made for monochrome negatives to be made professionally from 35 mm colour transparencies in special cases where no suitable black-and-white photograph is available. After reproduction in *British Birds*, the negative will be given to the photographer.

Contributors should realise that loss of quality may occur in all stages of reproduction and that the risk is greatest when reducing colour to monochrome, however expert the processor. It is imperative, therefore, that colour transparencies submitted be sharp and that the image of the bird be of a reasonable size. The accuracy of the colour is not of vital importance, and some degree of under-exposure is tolerable, although over-exposure almost invariably causes loss of important plumage details. The grain of the original colour film greatly influences the final result, and fast films are usually worse in this respect.

We hope that the provision of this service, at the publishers' expense, will lead to a wider range of photographs in our journal, although, at the same time, it must not be forgotten that it is a costly process and so such reproductions will have to be kept to a minimum. EDS

News and comment *Peter Conder*

Anniversaries 6th November 1976 is the 30th anniversary of the Wildfowl Trust, which has been notably successful in its specialised field. It has been in the forefront of many campaigns to safeguard wetlands, designed to bring awareness to birdwatchers and the general public of the importance of wet places and the oddly-shaped and even odder-voiced birds that live on them. Its wildfowl collections,

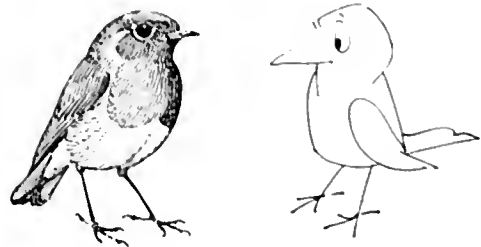
now in seven localities, give great enjoyment to huge numbers of people on week-end excursions. Genuine aviculturists must also be impressed by the trust's breeding record. Serious ornithologists rate it highly for its research programmes, which have produced invaluable evidence at a number of public enquiries, most notably perhaps at the various stages of the one into the siting of London's third airport.

The Norfolk Naturalists' Trust is 50 years old this year. Norfolk was the forerunner of the county trust movement and owns a number of important bird reserves including the Cley marshes, Scolt Head Island, Holme dunes, broads such as Hickling and Barton, and several properties in Breckland. All in all, this magnificent series of reserves is a tribute to those pioneer conservationists who saw that land will always get more expensive and who seized their opportunities.

European Wetland Year At the time of writing, the year is nine months gone. Some of the committed naturalists have laboured; others have paid lip service; a number of smallish offspring have seen the light of day; some wetlands have been safeguarded in new ways, either by purchase or lease. But I wonder whether all this activity was a special effort or something that was going to happen anyway? At the end of the year, what will the balance sheet show? Has European Wetland Year had any worthwhile effect on any government department, local authority or intransigent landowner? Will EWY have any effect on the Anglian Water Authority, which wants to reverse the flow of the River Ouse and thereby possibly dry up the Ouse Washes, a wetland of first class scientific importance and listed as such in the Convention on Wetlands of International Importance, especially as waterfowl habitat. It will be interesting to see if EWY has had sufficient impact upon the Council of Europe's national agency in this country—the Nature Conservancy Council—to make them use their influence as a government organisation to prevent this site being wrecked. On 10th July 1976, the director of the NCC is quoted as saying, at the ninth conference of the Association of County Trusts for Nature Conservation, 'The wetlands campaign is for all time. The immediate goal is recognition by everyone that wetlands, which are vital for our survival and quality of life, provide a critical test of our concern for this "one earth".' The fine words continued. Now let us see the NCC put these words into practice. This is a wonderful test case to see whether the Council for Europe and its campaigns mean anything at all.

The Birdwatchers' SECOND Quiz & Puzzle Book What a tortuous mind the new managing editor of *British Birds* has—and he is possibly somewhat sadistic in the way that he teases us. He is so superior about it too—the first puzzle says:

'Six birds can be identified...'; I managed five. I then went on to puzzle number 60 (because it looked easy) and managed to find eight out of the twelve birds required. But it is good fun, just the thing to tease you and the family at holiday times, and a good idea for Christmas stockings. Robert Gillmor's cartoons are a delightful addition. It is obtainable from the RSPB, all good bookshops or direct from the author,



Dr J. T. R. Sharrock, 59 Curlew Crescent, Bedford MK41 7HY; price £1.00.

Honours to ornithologists Congratulations to Robert Spencer, deputy director of the British Trust for Ornithology, who has been awarded an Honorary MSc

by Durham University, his alma mater. For over 20 years, Bob has not only led the British ringing scheme, but has been a major influence on ringing methods and organisation throughout Europe and beyond.

Congratulations also to Kenneth Williamson, on being awarded the Union Medal of the British Ornithologists' Union. His work on migration and, latterly, on population studies has been recognised throughout the world.

A new German series Dr Einhard Bezzel, distinguished both for his ornithological studies and his important work for conservation in Bavaria, is the editor of a valuable new series of monographs entitled *Vogelkundliche Bibliothek*, published by Kilda-Verlag, Greven, West Germany. The first two, both by Dr G. Thielcke, dealt with the threats to birds of prey and waterbirds respectively, while the third, by B. Conrad and W. Poltz, discussed bird protection in the European Economic Community. The fourth, aptly marking the ratification by the German Federal Republic earlier this year of the Ramsar Convention on Wetlands, has just appeared. In it, K. Haarmann and P. Pretscher cover fully the 17 wetlands of international importance in West Germany, which are found mainly in the north and south of the country. For each, they outline the habitat, significance of the area, protection measures in force, possible threats (including hunting, fishing and water sports) and further action needed, and give lists of numbers of the most important breeding and wintering birds, together with full references. Like its predecessors, it is attractively designed and fully illustrated with black-and-white photographs and line-drawings. Each volume is of large pocket size, bound in semi-stiff covers, and contains 60-100 pages. The current rate of exchange makes them expensive by our standards (over £3.50 for this fourth volume), but both the idea and execution of this series deserve praise and wide emulation. (Contributed by Stanley Cramp.)

Threats to Thames wildlife Conservationists, increasingly alarmed by the number of developments on the Thames estuary, have formed themselves into the Thames Estuary Wildlife Conservation Group to study the problems. The group, made up of representatives of twelve bodies interested in wildlife conservation on the estuary, including wildfowlers, plans to present its findings and recommendations to developers and statutory bodies, among them the Port of London Authority and the Greater London Council. The chairman is Stanley Cramp and the secretary is John O'Sullivan of the RSPB's conservation planning staff.

This method of bringing together a variety of opinion and experience was well tried out at the time of the enquiry into the siting of London's third airport and has been followed by bodies concerned with oil developments in Scotland and reclamation of the Dee estuary.

June and July reports *D. A. Christie*

These are largely unchecked reports, not authenticated records

SHEARWATERS TO DUCKS

A few **Cory's Shearwaters** *Calonectris diomedea* were noted off Portland (Dorset) during June, while at Scaton Sluice (Northumberland) 23 **Sooty Shearwaters** *Puffinus griseus* passed north between 18th and 31st July, with a maximum of 13 on

the last date. A **Fulmar** *Fulmarus glacialis* flew north over Attenborough (Nottinghamshire) on 3rd June.

There were two **Purple Herons** *Ardea purpurea* in June, at Stodmarsh (Kent) on 6th and at Sandwich Bay (also Kent) on 22nd. A **Little Egret** *Egretta garzetta* remained at Farlington marshes (Hampshire) from 4th June to mid-July and another was seen in the Cuckmere Valley (East Sussex) on 5th July. A **Little Bittern** *Ixobrychus minutus* arrived at Oxwich (West Glamorgan) on 24th June. **White Storks** *Ciconia ciconia* were reported from five places in Kent after 4th June, when one flew north at Lydd, though perhaps only two individuals were involved; one was at Horsham (West Sussex) on 11th June. On the latter date, a **Black Stork** *C. nigra* was found at Easby-in-Cleveland (North Yorkshire), staying until 16th. **Spoonbills** *Platalea leucorodia* were seen at six places in June and two in July, a total of about 14 individuals being involved, including four at High Halstow (Kent) and six inland. On 28th June a **Surf Scoter** *Melanitta perspicillata* was identified off Sands of Forvie (Grampian).

RAPTORS

A **Black Kite** *Milvus migrans* appeared at the Calf of Man on 3rd June and another was reported at Quarndon (Derbyshire) on 5th July. A **Honey Buzzard** *Pernis apivorus* at a mid-Bedfordshire wood on 19th May should have appeared in the May summary; others were subsequently reported at Redmires Reservoir (South Yorkshire) on 20th June, Dungeness (Kent) on 3rd July and Fair Isle (Shetland) on 16th. Away from Scotland, **Ospreys** *Pandion haliaetus* turned up at three places in June, Gunthorpe (Nottinghamshire) on 4th, Fair Isle on 5th and Holywell (Northumberland) the following day; and in July at Weston Turville (Buckinghamshire) and Wokingham (Berkshire) in the first week, and at Ogston Reservoir (Derbyshire) on 17th. We received a late report of a **Red-footed Falcon** *Falco vespertinus* at Foxhole Heath (Suffolk) from 16th to 21st May, and in June singles appeared at Haroldswick, Unst (Shetland) on 1st and at Old Hall marshes (Essex) on 2nd and 5th. Following the arrival of an **American Kestrel** *F. sparverius* on Fair Isle in May (*Brit. Birds*, 69: 374), another was reported at Bearah Tor, Bodmin Moor (Cornwall), from 13th to at least 26th June.

WADERS

A **Long-billed Plover** *Charadrius placidus* reported at Chasewater (Staffordshire) on 16th July will, if accepted, be the first of this Asiatic species to be seen in Britain and Ireland. A less unexpected visitor was a **Lesser Yellowlegs** *Tringa flavipes* which reached Huttoft (Lincolnshire) on 29th July. A **Marsh Sandpiper** *T. stagnatilis* stayed at Farlington marshes from 27th to 29th June. A **White-rumped Sandpiper** *Calidris fuscicollis* at Draycote (Warwickshire) on 17th May and a **Pectoral Sandpiper** *C. melanotos* at Barmston Pond (Durham) on 29th were both omitted from the May summary; a further **White-rumped** was at Killingsholme (Humberside) on 26th and 27th July, and two **Pectoral Sandpipers** in the Gunthorpe/Netherfield area of Nottinghamshire from 22nd to 25th July. **Broad-billed Sandpipers** *Limicola falcinellus* were reported at Frampton (Avon) in mid-June and at Crossens marsh (Lancashire) from 1st to 4th July. There were two **Buff-breasted Sandpipers** *Tryngites subruficollis* in June, at Farlington marshes on 11th and at Row Head (Orkney) on 25th and 26th. Four **Avocets** *Recurvirostra avosetta* at Dungeness on 8th June and one in the Yeo estuary (Avon) on 6th were unusual, as was one well inland at Eye Brook Reservoir (Leicestershire) on 8th and 9th of that month. At Blithfield Reservoir (Staffordshire) there was a female **Grey Phalarope** *Phalaropus fulicarius* in full summer plumage on 15th June, while on 27th a **Red-necked Phalarope** *P. lobatus* turned up at Fairburn Ings (West Yorkshire). At the latter locality, a **Collared Pratincole** *Glareola pratincola* was recorded on 28th June, and in the south-west another **pratincole** *Glareola sp.* was observed at Stithians Reservoir (Cornwall) on 4th July.

SKUAS TO AUKS

A **Long-tailed Skua** *Stercorarius longicaudus* was at Hoy (Orkney) on 20th June, but one reported at Chew Valley Lake (Avon) the previous day was much more surprising; in July the species was seen at Fair Isle on 9th, 14th and 15th-18th. A **Mediterranean Gull** *Larus melanocephalus* appeared at Aber Ogwen (Gwynedd) on 5th June. News of a **Ross's Gull** *Rhodostethia rosea* in full summer plumage at Hartlepool (Cleveland) on 7th May reached us too late to be included in the summary for that month. Several of the rarer terns were seen in Britain. **White-winged Black Terns** *Chlidonias leucopterus* were recorded at Clcy (Norfolk) on 14th June and Minsmere (Suffolk) on 19th, and in July in Kent at Dungeness on 1st and in Botany Bay on 18th. **Whiskered Terns** *C. hybrida* were identified at Shotton (Clwyd) on 5th July and at Holywell Pond (Northumberland) on 31st. As many as three **Gull-billed Terns** *Gelochelidon nilotica* were seen at Spurn (Humberside) on 15th June. A **Caspian Tern** *Hydroprogne caspia* was at Lydd on 9th June, and in July further ones were recorded at Besthorpe (Nottinghamshire) on 2nd and at Eye Brook Reservoir on 30th. There was also a very interesting report of two **Brünnich's Guillemots** *Uria lomvia* near Lerwick (Shetland) early in July.

NEAR-PASSERINES

An unusual bird found at Pluckley (Kent) on 15th June was thought to be a **Pallas's Sandgrouse** *Syrhaptes paradoxus*. The only **Alpine Swift** *Apus melba* reported during the period was one at Huntingdon on 22nd June. Similarly, there was just one **Bee-eater** *Merops apiaster*, at Walberswick (Suffolk) on 20th June, and one **Roller** *Coracias garrulus*, at Largs (Strathclyde) from 13th to 16th June, though there was a vague report of a Roller in Cornwall on the first two days of July. **Hoopoes** *Upupa epops* were seen in June in Kent (two) and Nottinghamshire, and in July in Avon.

PASSERINES

A **Short-toed Lark** *Calandrella cinerea* appeared at Casquets lighthouse (Channel Islands) on 6th June, remaining until 8th. A **Red-rumped Swallow** *Hirundo daurica* arrived on Fair Isle on 3rd June, the second of the spring there, and one was seen on the Isle of Eigg (Lochaber) on 10th. Away from known breeding sites, **Golden Orioles** *Oriolus oriolus* were seen in four places in Shetland in the first eight days of June and in a south Derbyshire wood on 30th June. Two **Fieldfares** *Turdus pilaris* arrived at Sandwich Bay on 27th July, three being present the next day and five on 31st. At the same place an immature **Redwing** *T. iliacus* was trapped on 22nd July. Still in Kent, a bird at Graveney on 11th July was thought to be a **Thrush Nightingale** *Luscinia luscinia*. The only **Bluethroat** *L. svecica* was a late migrant on Fair Isle on 2nd and 3rd June.

Well inland, a **Savi's Warbler** *Locustella luscinioides* was present at Bodymoor Heath (Warwickshire) from 14th to 19th July. Further **Marsh Warblers** *Acrocephalus palustris* appeared on Fair Isle on 11th and 12th June and 6th July, and a singing male was discovered at Dungeness on 3rd June. Also on Fair Isle, there were three **Icterine Warblers** *Hippolais icterina* on 1st June and one on 2nd, and a **Subalpine Warbler** *Sylvia cantillans* on 1st. Single **Red-breasted Flycatchers** *Ficedula parva* were recorded on Unst on 1st June and at Dungeness on 18th.

A late report of a **Richard's Pipit** *Anthus novaeseelandiae* at Portland Bill on 19th April is worth mentioning here. Two **Red-throated Pipits** *A. cervinus* appeared on Fair Isle in June, the first on 7th and the second from 10th to 14th. There was also an intriguing report of a possible **Pechora Pipit** *A. gustavi* at Northward Hill (Kent) on 17th July. A **Woodchat Shrike** *Lanius senator* was at Walberswick on 20th June, the same day as the Bee-eater mentioned above. Finally, **Scarlet Rosefinches** *Carpodacus erythrinus* appeared on Lundy (Devon) on 1st and 11th June and on Fair Isle on 7th and 18th of that month.

Recent reports *K. Allsopp*

[A number of changes in this feature will take effect from this issue onwards. The editorial board has long been aware that the monthly reports of bird news have been sadly late in appearing; indeed, the title 'Recent reports' was dropped almost three years ago, reflecting the fact that, for instance, 'May reports' in the September issue could not truthfully be described as 'recent'. With a regular publishing date now established, there is the opportunity for this section to live up to its restored title. To relieve the burden on the editorial staff and to give this feature the benefit of a new outlook, KA has taken over from D. A. Christie as regular author. Reports will be appearing a month earlier than hitherto. They will inevitably, therefore, be less complete, but will concentrate on the main events each month, rather than attempting to list every unusual record submitted. Interpretations of developing patterns will be speculative, but this treatment will, hopefully, act as a catalyst to fuller enquiries and detailed papers by other authors. In order to pick out the interesting patterns, however, individual records are still required. The coastal counties usually get the majority of spectacular movements and occurrences, but reports of unusual events inland, even of common species, can form a fascinating picture when linked together. Please write and tell us about those records that are newsworthy in your area: they may form part of a national picture warranting a section in this feature.

Not only will the main body of the monthly accounts be appearing earlier, but there will be a regular section devoted to the outstanding latest news, which will be incorporated as each issue goes to press. Four seasonal summaries will continue to appear annually, taking a wider and more comprehensive view than the up-to-date monthly reports.

Records should be sent to the editorial address, **59 Curlew Crescent, Bedford MK41 7HY**. Letters will always be acknowledged (unless you add a note saying 'acknowledgement not expected': an action which would be appreciated, as it would save both postage costs and editorial time). Eds]

These are largely unchecked reports, not authenticated records

This report covers August and the first part of September. Except when otherwise stated, all dates refer to August.



SEABIRDS, GULLS AND TERNS

The relentless mass movements of seabirds hold a special fascination to most birdwatchers, and off the North Sea coast these have been exceptional this autumn. On 29th, about 1,100 **Sooty Shearwaters** *Puffinus griseus* were seen off Tarbat Ness (Ross and Cromarty), and then, farther south, 548 off Flamborough (Humbly Grove) on 2nd September, 285 the following day, and about 200 off both Hartlepool (Cleveland) and Seaton Sluice (Northumberland) on 11th September. Other movements were reported from the Dutch coast and small numbers off north Norfolk. **Great P.** *gravis* and **Cory's Shearwaters** *Calonectris diomedea*, the former predominating, added to the excitement, with 45 off Tarbat Ness and 70 off

Teesmouth during 28th to 30th. There was also a **Little Shearwater** *P. assimilis* off Flamborough on 21st. These birds may have been displaced from their normal Atlantic feeding grounds by foggy and wet weather there during the preceding weeks or, as Dr W. R. P. Bourne (*in litt.*) has suggested, they may have moved far north during the warm, fine summer and then come south into the North Sea. No large movements of shearwaters were reported in the west, but two **Black-browed Albatrosses** *Diomedea melanophrys* were seen off the Old Head of Kinsale (Co. Cork) on 12th September. Skua passage in the North Sea has also been exceptional, including 50 reports of **Long-tailed Skuas** *Stercorarius longicaudus*, compared with the average of only 17 per year during 1958-67 (*Brit. Birds*, 63: 17-23). One hopes that the members of the Rarities Committee are not regretting their recent decision (69: 322) to add this species to the list of those considered by them!

These shearwater and skua movements clearly warrant full analysis when all the data are available. Another pelagic species, **Sabine's Gull** *Larus sabini* also occurred in unusual numbers off the east coast (six records) and there was one at Blithfield Reservoir (Staffordshire) on 12th, after a north-easterly gale. A **Lesser Crested Tern** *Sterna bengalensis* seen briefly as it flew past with some Sandwich Terns *S. sandvicensis* at Dungeness (Kent) on 1st September will, if accepted, be an addition to the British list.

NEAR-PASSERINES AND PASSERINES

From 8th, the winds over the North Sea tended to be light north-easterly and small numbers of **Greenish** *Phylloscopus trochiloides*, **Wood** *P. sibilatrix*, **Icterine** *Hippolais icterina* and **Aquatic Warblers** *Acrocephalus paludicola*, with a few **Ortolan Buntings** *Emberiza hortulana*, arrived from the Continent. On 22nd, the centre of the anticyclone moved east to southern Sweden and a strong easterly flow was established. **Pied Flycatchers** *Ficedula hypoleuca* became numerous on the east coast, and the first **Wrynecks** *Jynx torquilla* were reported from Blakeney Point (Norfolk), Fair Isle (Shetland) and Cape Clear Island (Co. Cork). On 24th, this last locality had an unprecedented four **Red-backed Shrikes** *Lanius collurio*, after reporting a **Red-tailed Shrike** *L. c. phoenicuroides/isabellinus* on 20th. A **Booted Warbler** *Hippolais caligata* was found on Fair Isle on 25th.

Two southern European species commonly considered to be mainly sedentary were also found during this period. The first was a **Sardinian Warbler** *Sylvia melanocephala* at Beachy Head (Sussex) on 15th. The second was a species new to Britain and those who know the observer-saturated East Bank at Cley (Norfolk) will be astonished to learn that it was seen at that locality by a single observer. This was a **Fan-tailed Warbler** *Cisticola juncidis* on 24th. Another may have occurred at Horscy (Norfolk) on 25th, but a direct report has not been received. The subsequent discovery of one at Holme (Norfolk) on 28th probably related to one of these same individuals.

LATEST NEWS

The following have been reported in October: **Sooty Albatross** *Phoebastria fusca*, Sandwich Bay (Kent); **Sociable Plover** *Vanellus gregarius*, Fen Ditton (Cambridgeshire); **Ross's Gull** *Rhodostethia rosea*, Spurn (Humberside); dead **Nighthawk** *Chordeiles minor*, **American Robin** *Turdus migratorius* and four **Grey-cheeked Thrushes** *Hylocichla minima*, all Scilly; **Pied Wheatear** *Oenanthe pleshanka*, Aberdeen; **Thrush Nightingale** *Luscinia luscinia*, Whalsay (Shetland); four **Radde's Warblers** *Phylloscopus schwarzi*, Portland Bill (Dorset), Waxham (Norfolk), Marsden (Tyne and Wear) and Whalsay; **Olive-backed Pipits** *Anthus hodgsoni*, Fair Isle (Shetland) and Scilly; **Myrtle Warbler** *Dendroica coronata*, Cape Clear Island (Co. Cork); eight **Blackpoll Warblers** *D. striata*, western Britain and Ireland; **Pallas's Reed Bunting** *Emberiza pallasi*, Fair Isle; two **Rose-breasted Grosbeaks** *Pheucticus ludovicianus*, Scilly.

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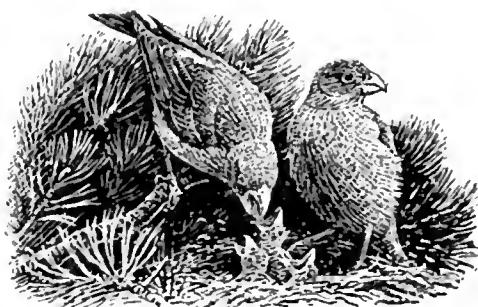


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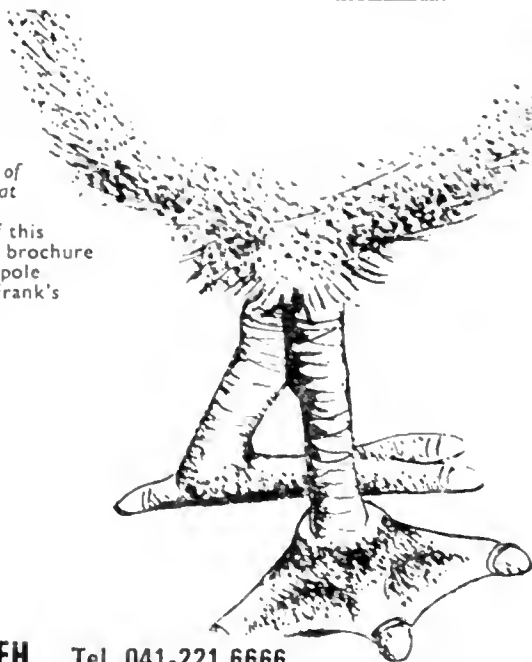
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Plates 29-32

The quality of the reproduction of plates 29-32 in the July issue, featuring Thrush Nightingales *Luscinia luscinia*, was so poor that no photographs were included in August, to give a breathing space while the reason for the fault and a remedy were found. We hope that a permanent solution has been achieved; readers will have noticed the marked improvement in photographic reproduction in the September to November issues.

Plates 29-32 have now been reprinted and are inserted in the centre of this issue. These will be substituted for the substandard original plates by the binders and should be left in position if you intend to have volume 69 of *British Birds* bound by P. G. Chapman & Co. Ltd, Kent House Lane, Beekenhams, Kent BR3 1LD; subscribers not intending to have volume 69 bound may care to make the substitution themselves. EDS

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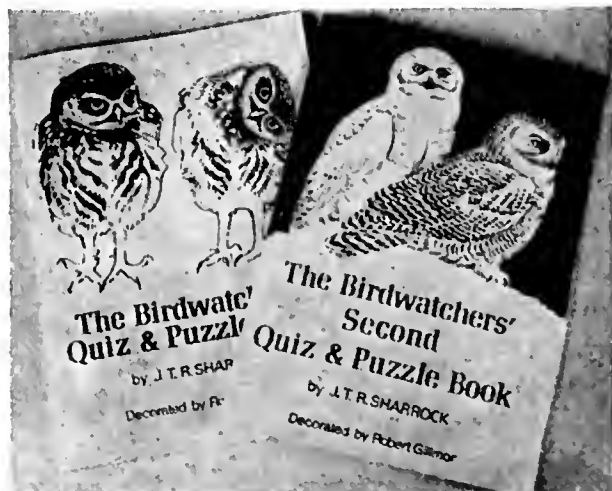
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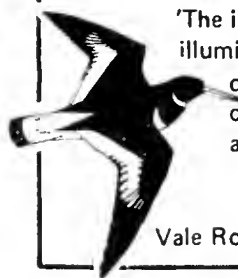
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British Birds

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Distinguishing Little and Reed Buntings

D. I. M. Wallace

Plates 50-51

Peterson *et al.* (1974) stated that Little Buntings *Emberiza pusilla* are 'distinguished from female Rustic and Reed Buntings [*E. rustica* and *E. schoeniclus*] by smaller size and dull chestnut cheeks'. Other field guides make similarly facile statements. All but one are content to feature illustrations only of adult males. Thus, none stresses the very real danger of confusion between Little and Reed, to which the files of the Rarities Committee bear frequent witness and which is perhaps best exemplified by the unfortunate publication, in *Vår Fågelvärld* (1965, 24(1): opposite page 17), *Birds of the World* (page 2468) and *Collins Colour Guide* (page 217), of a photograph of a young female Reed labelled as a Little. This paper, which stems from correspondence between observers in Britain and Sweden in 1974 and 1975, follows the publication of a useful, well illustrated comparison of the two species by Svensson (1975b), and attempts to reduce some of the evident risks in small bunting identification. It deals with size and structure; plumage; briefly, habitat and behaviour; and calls.

SIZE AND STRUCTURE

Typical Little Buntings are indeed little buntings, being shorter than, for example, Meadow Pipits *Anthus pratensis* and Tree Sparrows *Passer montanus*. The size comparison with Reed Buntings is less easy, for, while female Littles are always smaller than female Reeds, some large male Littles overlap, at least in wing length, with them. In addition, a few male Littles have wings as long as the smallest male Reeds. In the cases of these larger individuals, the size differences

may be less than 2 mm, and practically invisible in the field. Thus, while normal Littles are (and appear) distinctly smaller than Reeds, it must be noted that many observers have seen peculiarly small, presumably runt Reeds (both adults and immatures) and caution is essential over the character of size as a single basis for identification. For a fuller treatment of measurements, reference to Witherby *et al.* (1938) is recommended.

Happily, there are more differences in character than those relating to size. These stem from structure and, though rather subtle, they form important clues.

Bill shape

The bill of the Little Bunting is not short and its shape is characteristic, with a rather long, triangular outline and a sharp point; the culmen is usually straight or even slightly concave (Svensson 1975, R. H. Dennis *in litt.*). The bill of the Reed, though in fact longer, is quite large and looks rather short. Its shape is essentially triangular, but the base is deep and rather bulbous; the outlines of both mandibles are slightly convex. (The degree of convexity, together with bill depth and general size, increases in the populations of Reed Buntings inhabiting Austria, parts of the Mediterranean area and all of eastern Europe.)

Head shape

The Little Bunting has a rather small head, a flat sloping forehead and an evenly rounded crown, the last feature contributing to a rather neckless appearance. Its round appearance is enhanced by the contrast between the rich chestnut of the head and the greyish cast of the mantle. The Reed has a larger and more angular head, often with an obvious fore-crown angle, pronounced rear-crown and, usually, more elongated neck. Again, the head shape is often exaggerated by the paleness of the nape collar in males, also shown by some females and immatures.

Body shape

In photographs, migrant Little Buntings look dumpy, with a configuration recalling Linnets *Acanthis cannabina* or Tree Sparrows. Such comparisons, a stress on compactness and even allusions to a 'hunch-backed' appearance are frequent in recent British records and, in this respect, their resemblance to Dunnocks *Prunella modularis* can be striking (R. J. Johns *in litt.*); this extends to feeding manner and hopping gait. Older references mention slimness (with compactness) for Little, recalling pipits *Anthus spp.* This is indicated in the photographs of breeding birds published by Svensson (1975b), but it is not recorded for migrants.

By contrast, the Reed Bunting has a rather long body, made more attenuated, as in most buntings, by the pronounced extension of the tail. Only very exceptionally does it recall a small finch (Fringillidae) or a dainty sparrow *Passer* sp. Even small Reeds retain the rather high-headed, evenly-contoured, long outline of larger individuals.

Folded wing shape

Wing shape may be difficult to observe, but, as pointed out by Svensson (1975a and b), there are important differences in this character. The primary emarginations of Little Buntings fall almost directly below the tips of the secondaries, whereas those of Reed Buntings fall well inside that position. The spacing of the primary tips is also dissimilar. Only four tips are easily visible on Littles, and two (5th and 6th) cover most of the wing point. Reed Buntings, however, show five tips; their spacing is rather even, but the longest (5th) is almost masked by the next (6th). The determination of these differences in spacing requires exceptional skill in observation.

Tail length and shape

Owing to wide variations between individual Reed Buntings, the difference in tail length between the two species is not constant. It can be as little as 2 mm. Thus, short-tailed Reeds are a particular danger. There is, however, a pronounced difference in tail shape. The tail ends of Reeds are usually full and rather loose, this character being obvious in flight and on the ground, where it is often exaggerated, not only by flicking, but also by an obvious and characteristic 'nervous' spreading of the outer feathers. The tails of Littles, even when spread, are essentially rectangular and, when folded, look noticeably thin, particularly from behind. In the opinion of R. H. Dennis, R. J. Johns and myself, they are flicked, but not spread in alarm (*contra* Harris 1957).

Leg length

The Little Bunting has short legs, and these clearly account for the Dunnock-like shuffle already referred to above. It hugs the earth. The Reed, on the other hand, has legs as long as those of the Yellowhammer *E. citrinella*. They can exceed those of the Little by up to 25%, and the stance of Reeds on the ground is usually quite upright.

Flight silhouette and action

A Little Bunting looks compact, neat and rather 'busy' in flight, being difficult to follow in a flock of Linnets, for example, in a way that a Reed is not. Its configuration is not outstanding except for the noticeably rectangular tail. The Reed Bunting looks long and rather

free, yet jerky, in flight, being easy to follow. Its configuration is very individual, with wings apparently set well forward, and tail length and flexibility very obvious. Its flight action is also distinct, being rather pipit-like, with noticeable bursts of wing-beats (sometimes seemingly uneven), most obvious from behind.

Many of the characters discussed above will be seen only with practice and, since the Little Bunting remains a rather scarce vagrant in western Europe, this is best obtained with the Reed, which can be studied the whole year round.

PLUMAGE

There has been considerable confusion over plumage differences between Little and Reed. There is not much published information on the appearance of the former in the field (and notes on it in this journal have contained comments that now seem odd). Rather than add to the confusion with a plethora of age and sex comparisons, I have concentrated in table 1 on isolating plumage features that are either diagnostic or strongly indicative of the species in most plumages. There is, of course, no possible error with an adult male Reed in breeding plumage, which is not included in table 1.

There remains the matter of bare part colours. Little usually shows a paler bill than Reed, recalling that of a Redpoll *Acanthis*

Table 1. Plumage differences between Little Buntings *Emberiza pusilla* and Reed Buntings *E. schoeniclus*, other than adult males in breeding plumage

Plumage area	LITTLE	REED
HEAD		
Centre of crown	Typically pale chestnut in adults, but variable in immatures: some as adults, but others paler or yellower, even streaked grey or brown; colour palest at front	Typically dull brown, but very variable in immatures: often paler and even yellowish-buff
Lateral crown stripes	Distinct, typically black in adults, but dark blackish-brown or even chestnut in some females and most immatures, on which black feather bases obscured by paler fringes and tips	Very variable, dark brown on most, but often paler, even bright chestnut in some immatures, also blackish in young males in spring
Supercilium	Wide, obvious behind eye (forming upper part of pale surround to cheek), always buff, tinged chestnut before eye and distinctly paler behind it	Not obvious in most (with less contrast with cheek), dull brownish-white, rarely yellowish
Eye ring	Very distinct, cream or pale buff on most, off-white on some, paler than supercilium and contrasting with dark cheek	Indistinct, colour as supercilium

Table 1 (continued)

Plumage area	LITTLE	REED
HEAD		
Cheek	Bold patch, typically almost uniform chestnut in adults, duller, yellower in immatures, often with paler spot at rear and with black edges or patch usually obvious behind eye, round or on rear half but never with lower outline extending forward of point below eye	Obvious, typically mottled dull brown, but chestnut in some, with dark surround (blackish in some males) most obvious behind eye and along lower half, with dark outline reaching base of lower mandible
Malar stripe	Cream or buff in most adults, but usually white in immatures, when obvious	Obvious, white to pale greyish-buff
Moustache	Obvious, black, usually broadening at base	Pronounced, usually heavy dark brown or black line, generally broadening into large smudge at base
UNDERPARTS		
Chin and throat	Variable, buff, even chestnut in adults (distinctly warmer than rest of underparts), white or pale cream in immatures	Typically white, washed yellow or buff, but greyish-buff in some, never contrasting with rest of underparts
Streaks	Typically short, fine and discontinuous black (looking 'clean' against white ground colour)	Typically rather long, often diffuse and usually continuous; dark brown, looking 'messy' against dull ground colour
UPPERPARTS		
General colour	Typically rather dull, even greyish-brown, less warm than head, but bright and rather 'coppery' in some	Typically bright, pale brown and even chestnut, but duller and colder in some
Lesser wing-coverts	Indistinct, dull brown and not contrasting with rest of upperparts	Very distinct, bright chestnut or bay, forming most colourful mark on many females and immatures
Wing bars (tips of median and greater coverts)	Obvious, particularly on median coverts, pale buff, even off-white, distinctly paler than covert fringes	Very indistinct, pale chestnut and only very slightly paler than covert fringe
Tertial fringes	Distinctly pale, but not broad	Very distinct, pale and noticeably broad on outer webs
Rump	Chestnut or brown, indistinctly streaked	Typically grey-brown, but brown in some females, even buff in some immatures, with virtually no visible streaks

flammea in having pale brown or ochre on the lower mandible at least and also on the cutting edge and base of the upper (per RHD). It never has a blackish bill like some male Reeds. The legs of Little are usually paler and cleaner than those of Reed and can show a pronounced pinkish tone.

Although the head pattern of typical Littles can be very obvious, it is likely that, of the characters analysed in table 1, only the following are foolproof: eye ring, fore-cheek pattern and lesser wing-coverts. I must stress the very real chance that some immature male Reeds in spring can exhibit head patterns very close to that of Little and that, in autumn, some birds are extremely confusing. Young Reeds with apparently chestnut crowns and cheeks look very unlike their usually drabber selves and clearly cause confusion to many observers. In such cases, and in those of poorly marked Littles lacking strong black on the crown edges, it is important to try for the other certain characters. *Begin with the eye ring* seems to be the new golden rule. Finally, I must note my complete failure to support the suggestion that a pair of pale back stripes is diagnostic of Little (Harris 1957, disputed by Svensson 1975b). This character is common to several species of buntings and is irrelevant to the distinction of the two under discussion here.

HABITAT AND BEHAVIOUR

Differences in breeding ecology are swamped in the exigencies of migration, but it is apparent that migrant Little Buntings rarely enter woody cover, even where their preferred scrub willow *Salix* exists. They are found most frequently in crops, on disturbed soil or on paths and roads, appear to feed almost exclusively on seeds or ground insects and tend to go to ground rather than to cover when flushed. They have a reputation for being tame, but also have the remarkable ability to vanish in minimal vegetation. Migrant and wintering Reeds are virtually ubiquitous in vegetation, now being independent of their original waterside niche, and may be seen feeding in trees with Chaffinches *Fringilla coelebs* and on shingle with Snow Buntings *Plectrophenax nivalis*. They may go to ground when flushed, but usually first perch on a tall weed or the edge of dense cover in order to observe their disturbers. Migrant Reeds are often wild and secretive and the flocks of Scandinavian migrants that visit Britain may bring Little Buntings with them as well as Rustic Buntings.

CALLS

The voice of the Little Bunting has been incompletely studied, but migrants certainly utter two short monosyllables (or two distinct variants of one) and perhaps a third. According to Svensson (1975b),

the most common call is a hard, sharp, clicking 'zik', recalling a Hawfinch *Coccothraustes coccothraustes*. This note is also rendered 'tie', 'tick', 'tzik', 'piek' or 'pwiek', and also recalls a Rustic Bunting or a Robin *Erithacus rubecula*. The description of the last transcription as 'slightly rising' (L. S. V. Venables, in Witherby *et al.* 1938) is disliked by Swedish observers, who opine that the monosyllable is invariably flat in tone. British observers, however, have distinguished two types of clipped monosyllables, that above and a quieter, lower, dry 'tip', 'stip', 'tsip' or 'tsitt', also written 'tick', 'twit' or 'pwit', again recalling a Robin or a Song Thrush *Turdus philomelos*. Several recent records feature monosyllables ending in both hard and soft consonants, and there can be no doubt that Little Buntings give more than one variety of call on passage through Britain. Furthermore, both types noted above may be quickly repeated in series (usually twice or thrice) from the ground and in flight.

Svensson (1975b) doubted Venables's (1949) ascription to the Little Bunting of a higher, more musical 'tsew' call than that of Reed, and several British observers familiar with Little are also wary of this call, now again enshrined by Heinzel *et al.* (1972); two recent records of problematic Littles giving it were rejected by the Rarities Committee. Having personally learnt from Venables the need for care in voice notation, I am reluctant to exclude the 'tsew' call from the list of those uttered by Little, and it should be noted that two other not dissimilar monosyllables are given by breeding birds. These are a short, slightly hoarse 'tse', recalling a Spotted Flycatcher *Muscicapa striata*, and a quiet 'tseec', again recalling a Robin and, in fact, common to several buntings when inactive on territory (L. Svensson *in litt.* and 1975b). Only one other note is on record for Little: a thin 'kit', given by adults to fledglings (Svensson 1975b).

The voice of the Reed is much better known, but the transcription of its rather variable notes is not easy. Migrant calls include a very typical, quite loud, plaintive 'tsew', often given in alarm or during escape flights; a quieter 'tsip' or 'ehit', also associated with alarm; a penetrating, metallic, ringing 'chink' or 'tzing', apparently a contact call; and a loud, clear 'tzeek', 'tscheck' or 'tseep'. Breeding Reeds also utter a quiet, reflective 'tsee'. There is the obvious danger that several of the above transcriptions of calls could relate to either species, but I have no evidence that the Reed ever utters any note like the 'tzik' or 'tick' of Little, or repeats any of its notes in rapid series. RHD (*in litt.*) has stressed the absence of any 'tick' note from the vocabulary of the Reed Bunting.

OTHER CONFUSION SPECIES

Several Asiatic buntings that normally migrate within the east Palearctic have straggled west to Europe, and three small species

merit brief discussion in the context of this paper. The Chestnut Bunting *E. rutila* (France, the Netherlands and a candidate for category D in Britain) is larger and more thickset than the Little Bunting, and even the less chestnut females and immatures are quickly separated by their rufous rumps, strongly yellowish underparts and lack of obvious white in the tail. The Pallas's Reed Bunting *E. pallasi* (Denmark and, under review, Britain) is essentially a miniature Reed, but at all ages it differs from both that species and Little by its paler appearance, notably on the rump, which can appear pale grey or even white. Female Pallas's Reeds have chestnut cheeks, but no striking crown pattern.

Potentially much more troublesome is the Yellow-browed Bunting *E. chrysophrys* (France, Belgium and, under review, Britain). Like the Chestnut, however, it is a plumper bird than Little, and males present no problem, since their basically black heads are obviously marked by a white crown stripe widening on the nape, a sulphur yellow supercilium and a whitish cheek patch. Females and immatures somewhat resemble dull Littles, but are easily separable by their less uniform plumage colour, the lack of any striking head pattern and their relatively much larger, finch-like bills.

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SUMMARY AND CONCLUSIONS

Observers who find a small, nondescript bunting, and who not unnaturally think of Little Bunting *Emberiza pusilla*, will find insufficient text or illustrations in field guides to support the identification of any but the most obvious male. The danger of mistaking small or oddly plumaged Reed Buntings *E. schoeniclus* for Littles is considerable. Except in adult male plumage, Little and Reed Buntings present very real identification problems. The main points distinguishing Little are: more pointed bill; neckless, hunch-backed appearance; thin, rectangular tail; short legs and shuffling gait; pale eye ring; uniform, chestnut cheeks (yellowish in immature); dull brown lesser wing-coverts; and ticking call note.

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Bearded Tits in Britain and Ireland, 1966-74

John M. O'Sullivan

WORLD STATUS

On the Continent, the Bearded Tit *Pamurus biarmicus* breeds in the Netherlands, north-western Germany and, patchily, in most European countries south to southern France, south-eastern Spain and southern Italy, and east to Greece and southern Russia. Outside Europe, it breeds in Asia Minor east to south-western Siberia, and in eastern Mongolia and north-eastern China (Vaurie 1959, Voous 1960).

STATUS IN BRITAIN

The history of the species in Britain up to 1965 has been documented by Axell (1966). A general decrease in range was apparent in the 19th century, with contraction from much of southern and eastern England into Norfolk alone. This was probably due mainly to a combination of the destruction of its nesting habitat and severe winter weather. In the early years of the present century, numbers began to increase, and the recolonisation of Suffolk followed, despite near-extermination several times in hard winters. After the last but one of these (1946/47), Bearded Tits increased steadily in numbers from just two to four pairs in Suffolk, and probably less in Norfolk, to 108 pairs in East Anglia in 1957 and 285 in 1962. Despite a marked decrease during the harsh winter of 1962/63, good numbers survived, and by 1965 East Anglia held an estimated 257 pairs. Eruptions of the species were first observed in 1959; from

1960 onwards, small numbers bred in Kent and, from 1962, a few pairs also in Essex. In the early 1960's, these colonies persisted and breeding also took place in at least three other counties (Axell 1966, Parslow 1967). Since 1965, the increase in numbers and geographical spread has continued and this paper documents these changes up to 1974.

The situation in the years 1966-74 is examined below. The first section deals with breeding distribution on a county-by-county basis; the second discusses dispersal; and the third considers wintering during the period. Unless otherwise stated, records are taken from the county bird reports for the relevant years. Old county names are employed throughout, since these were in use for most of the period (until 1st April 1974).

BREEDING

The nesting habitat is beds of the common reed *Phragmites australis*. The presence of Bearded Tits is not difficult to detect during the breeding season (except during periods of strong winds, when they stay low in the reeds), since they are not shy and advertise themselves by calling. Not all of the likely sites are examined, however, and it is possible that breeding occurs undetected in some places. Estimation of the numbers involved is often difficult. Attempted counting of nests is undesirable, since it damages the reed-beds and disturbs the birds (including, perhaps, other scarce reed-nesting species, such as the Bittern *Botaurus stellaris* and the Marsh Harrier *Circus aeruginosus*). Counting flocks of fledged young and erupting parties in autumn may give an indication of breeding numbers and success, but proper coverage requires frequent and regular watching at a site, and this is the exception rather than the rule. For these reasons, recorded breeding numbers are often estimates, particularly at the larger sites (e.g. the Norfolk Broads). The counties in which Bearded Tits have bred during the period are arranged here in the order in which the geographical spread appears to have occurred.

Norfolk

In the years 1966-74, Broadland probably continued to be the main stronghold of the Bearded Tit in Britain. Estimates of breeding pairs were made only up to 1969, when 140-160 pairs may have bred in the area as a whole. Thereafter, the birds were not counted, but an increase in line with other sites in East Anglia seems likely. Outside the Broads, in the north of the county, Cley held about 20 pairs in each year during 1966-71, twelve pairs in 1972, and probably slightly more thereafter. Titchwell held one or two pairs in 1968, increasing to ten pairs by 1971 and 30-35 pairs in 1974. On the Wash, two pairs bred in the Snettisham area from 1970 to 1974

(R. Berry *in litt.*). Elsewhere in Norfolk, occasional pairs have bred in the Yare valley and at other sites, but the fact that many may be overlooked was shown by the discovery of 20 pairs in the Waveney valley in 1971.

Suffolk

The two main breeding stations in the county are Minsmere and Walberswick. Estimates of breeding numbers at the former site are available for the years 1966-74 (H. E. Axell *in litt.*). In 1966, about 30 pairs bred there, rising to 35-40 pairs in 1967 and 1968. After severe weather in southern England in the following winter, only 20 pairs bred in 1969, but 1970 proved to be the best year ever, with a record 60 or more pairs breeding—some raising up to four broods in the long, warm summer—so that by the autumn the area held about 1,000 Bearded Tits, the highest number ever recorded at Minsmere. In 1971, there was a further increase to about 80 pairs, and this was maintained in 1972 and 1973, with a slight drop to about 70 pairs in 1974. It is likely that the trends in breeding numbers followed a similar pattern at Walberswick, but accurate counts were generally not attempted. In 1972, however, Walberswick held about 100 pairs. Outside these two main areas, breeding by small numbers occurred occasionally in other coastal reed-beds and, in 1972, one pair nested right away from the coast, in the west of the county.

Kent

Breeding occurred in the county for the first time since the 19th century in 1960, and numbers increased from 12-20 pairs in the north of the county in 1966 to 30 or more pairs at five localities in 1970, with 15 or more pairs in the Stour valley—the county stronghold. In 1971, there was a further increase to more than 50 pairs, with 30 in the Stour valley, and in 1972 six and 1973 seven sites were used, with an increase in total numbers. In 1974, five or six sites were occupied and over 100 pairs (and perhaps as many as 150) were thought to have bred (C. E. Wheeler verbally).

Essex

After an absence of many years, the Bearded Tit bred again in the county in 1962. The same coastal site was used in each year until 1967, when it held six or seven pairs. In subsequent years, up to four (usually two) other coastal sites each held two to four pairs.

Yorkshire

In 1964, breeding was first recorded at Blacktoft Sands, on the south side of the Humber, and the species probably bred each year there-

after in gradually increasing numbers. The first careful count, in 1973, revealed about 40-50 nesting pairs, and by 1974 the total had risen to over 70 pairs (A. Grieve *in litt.*), some of which raised three broods. In recent years, breeding has been suspected at other sites in the county (including Hornsea Mere in 1971) and three or more sites may have held small breeding numbers by 1974.

Hertfordshire

The first ever breeding record came in 1966, when two pairs raised seven or more young at Stanborough Reedmarsh. Two pairs were again successful in 1968, but, although a breeding attempt was made, no young were fledged in 1971. In 1972 and 1973, Bearded Tits were again present, but the reed-bed was destroyed by fire in both years. None is known to have nested in 1974. (T. W. Gladwin 1976.)

Hampshire

Breeding may have occurred in the county in most years in the early 1960's. One pair possibly bred at Titchfield Haven in 1966; single pairs certainly did so in 1967, 1969 and 1970, and two pairs in

Table 1. Breeding population of Bearded Tits *Panurus biarmicus* in Britain during 1966-74

Figures given represent the approximate number of pairs breeding in each county. In Norfolk, estimates of numbers breeding in Broadland have not been attempted since 1969; the figures for subsequent years are thought to be minima. In Suffolk, numbers given for 1966-71 are from Minsmere only; at Walberswick there were no counts until 1972, although breeding doubtless took place in each year. The totals are therefore approximate and represent minima. P indicates probable breeding and S summering

	1966	1967	1968	1969	1970	1971	1972	1973	1974
Cambs.									P
Dorset		<10	<10	<10	<10	<10	<10	<10	10-12
Essex	4	6-7	7-8	6-8	6+	6-8	6-8	4	8+
Hants.	P	1		1	1	2	S		S
Herts.	2		2			2			
Kent	12-20	27	20	30	30	50	50+	50+	100+
Lanes.							S	1	3
Lines.			3	3-4	1	1	4+	10+	20+
Norfolk	140	180	170	170	200+	200+	200+	200+	200+
Suffolk	30	40	40	20	60	80	180	180+	180+
Sussex						S	1	2+	1
Warwicks.						S			
Yorks.	P	P	P	P	P	P	P	50	70+
Anglesey		1						S	
Glams.									P
TOTALS	200+	260+	240+	240+	300+	350+	440+	500+	590+

1971. Subsequently, the species may have bred at Titchfield or elsewhere, since there is much suitable habitat, but there are no definite records. A pair summered at Farlington in 1974.

Dorset

Breeding was proved at Radipole Lake for the first time in 1967 and a few pairs continued to nest at that site in every year thereafter until 1974, when about 10-12 pairs were thought to have bred (M. J. Everett verbally). This is the stronghold of the species in the county, but it also bred at Abbotsbury and Burton Bradstock in 1971, at Poole harbour in 1974 (C. J. Bibby verbally) and at one or more other sites.

Anglesey

The first Welsh breeding record of the species came from this county in 1967, when one pair bred (*Brit. Birds*, 63: 83-84). It is possible that Bearded Tits nested in other years—they were present throughout the breeding season in 1973—but no proof was obtained.

Lincolnshire

In 1968, Bearded Tits bred in Lincolnshire for the first time in over 100 years, with three pairs at two sites. The same two sites were regularly used between then and 1974, although occasionally breeding occurred at only one of them. Small numbers (one to three pairs) were involved at first, but, by 1974, twelve pairs were thought to be breeding at one site and 10-15 pairs at the other.

Warwickshire

Bearded Tits were recorded at a site in the county in summer 1971, and possibly bred (Sharrock 1976).

Sussex

During 1971, Bearded Tits were resident throughout the year at one site in Sussex, but did not breed. The next year, however, a male was seen feeding a juvenile on 20th May, providing the first county breeding record for over 100 years. The following year at least two sites were used by a few pairs, but in 1974 only one pair was thought to have bred.

Lancashire

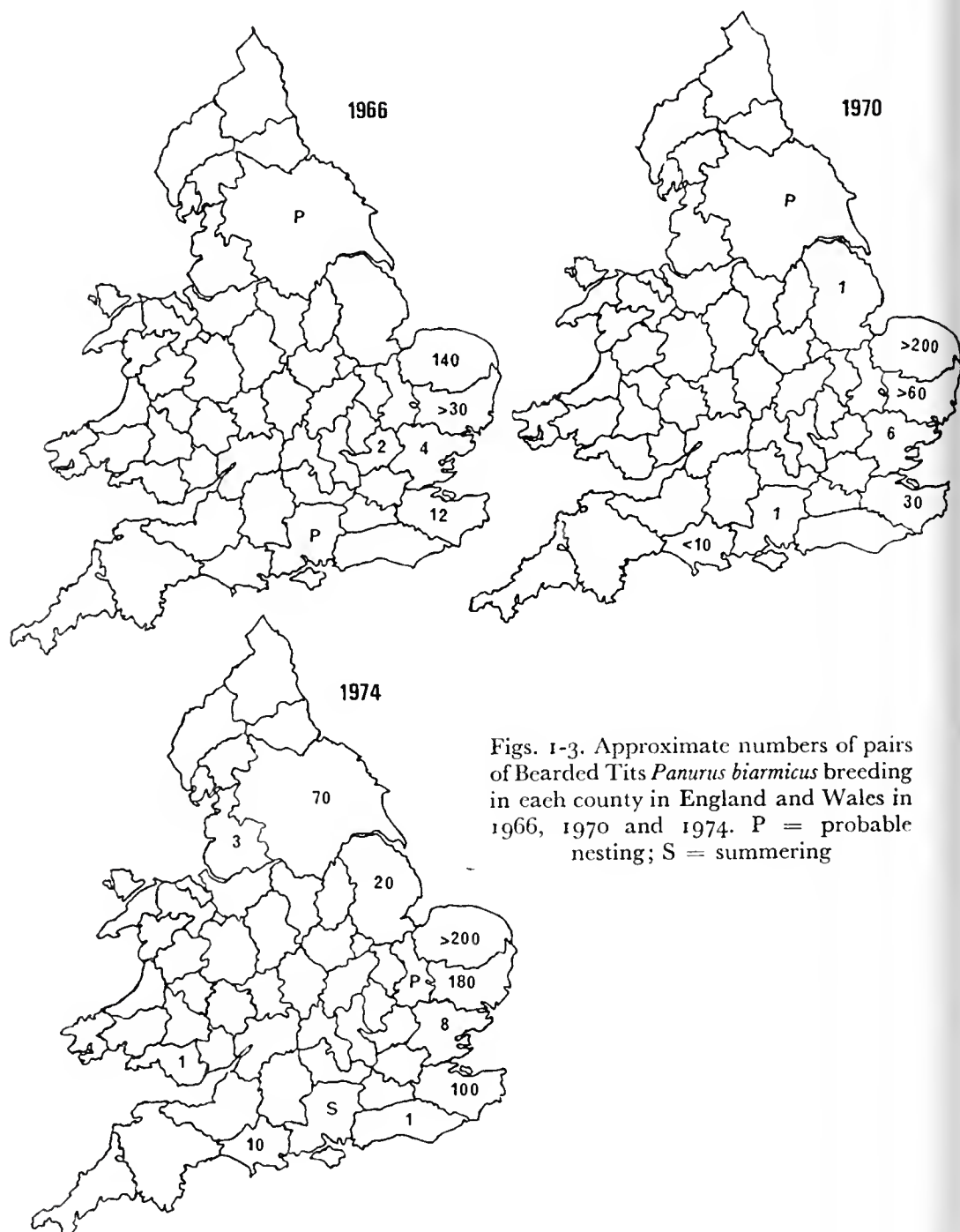
In 1972, two females summered at Leighton Moss and in the following year the species bred for the first time ever in the county, at least one pair raising three broods. In 1974, there was an increase to three pairs, and these had a successful season, rearing 35-40 young (J. Wilson *in litt.*).

Glamorgan

In 1974, Bearded Tits probably bred in small numbers at Oxwich, the first suggestion of breeding in Glamorgan.

Cambridgeshire

Bearded Tits were present at Ely beet factory throughout the



Figs. 1-3. Approximate numbers of pairs of Bearded Tits *Panurus biarmicus* breeding in each county in England and Wales in 1966, 1970 and 1974. P = probable nesting; S = summering

summer of 1974 and four juveniles were seen at Wicken Fen on 27th July, strongly indicating breeding in the vicinity.

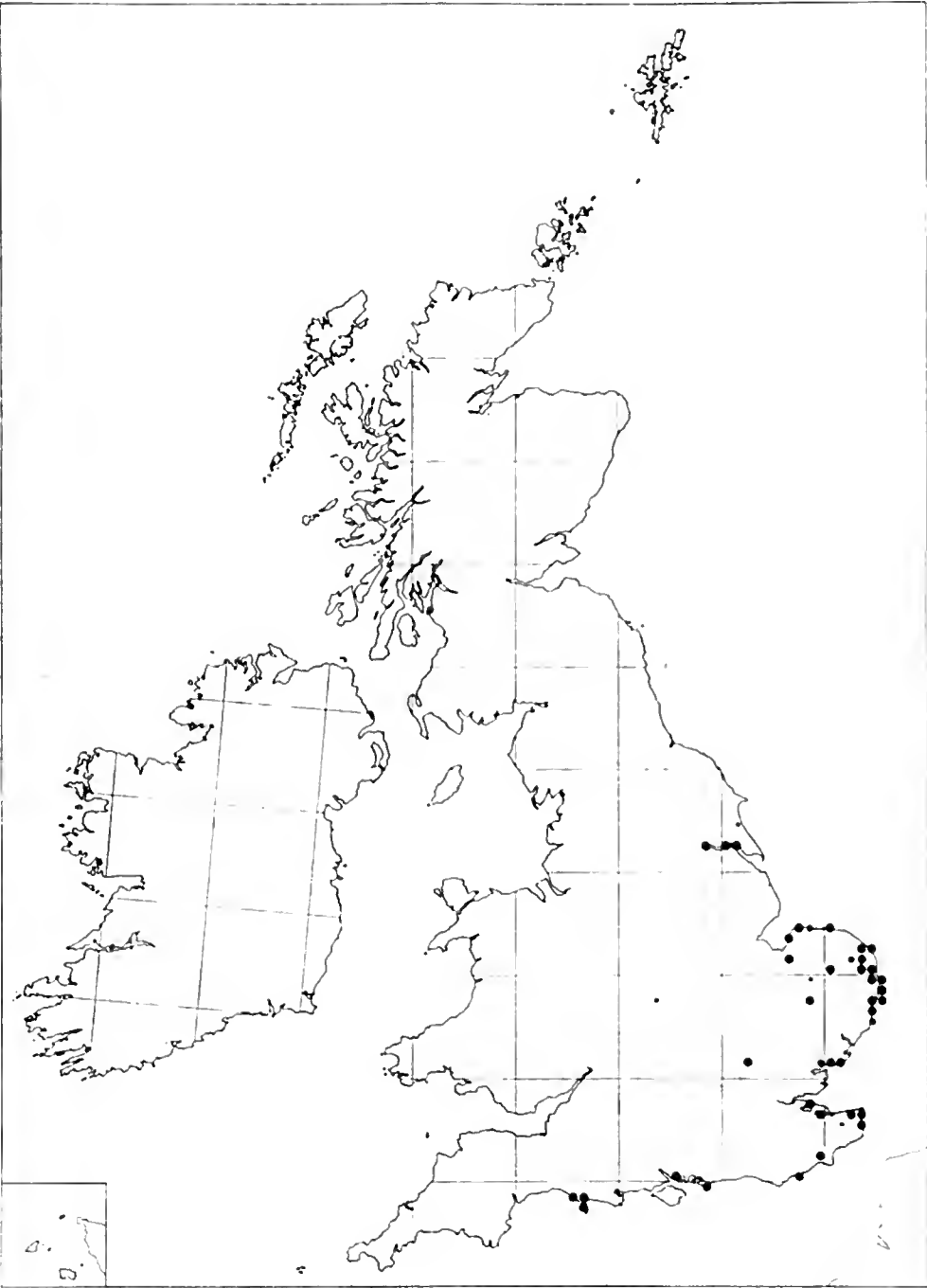


Fig. 4. Breeding distribution of Bearded Tits *Panurus biarmicus* in Britain and Ireland during 1968-72 (reproduced, by permission, from *The Atlas of Breeding Birds in Britain and Ireland*). The smallest dots indicate possible breeding, the next probable, and the largest confirmed breeding, within each 10-km square

Totals

Table 1 shows the approximate number of breeding pairs in each county, 1966-74, and figs. 1-3 illustrate the spread by reference to the years 1966, 1970 and 1974. Fig. 4 shows the breeding status of the species as recorded by the British Trust for Ornithology/Irish Wildbird Conservancy *Atlas* survey in the years 1968-72.

DISPERSAL

Bearded Tits begin to leave the breeding grounds in early to mid-September and small parties may be seen, from then on, flying steeply up to considerable heights and then away. This may continue until early November, and from Blacktoft Sands there are records of their behaving in this way in good weather as late as early January (A. Grieve *in litt.*), but the bulk are on the move in October. The return migration begins in late March and lasts until early May. The last to arrive at Minsmere may do so when there are already young in the nests of those that have overwintered or arrived earlier (H. E. Axell *in litt.*). Overwintering occurs at all the main breeding sites. Of those that leave, ringing has shown that the ones that survive the winter are capable of returning to their breeding places. For example, one ringed at Walberswick on 6th July 1964 was controlled at Northfleet, Kent, on 3rd November 1965 and, again, at Minsmere on 7th October 1966 (Spencer 1967). Another ringed at Walberswick on 17th September 1966 was re-trapped at Dartford, Kent, on 18th October 1970 and, again, at Minsmere on 19th May 1971. A third record concerns one ringed at Murston, Kent, on 5th June 1972, which was controlled at Salt-house, Norfolk, on 31st October 1972 and, again, at Murston in the following breeding-season, on 29th May 1973. The best example of an established pattern of breeding and wintering at two separate sites concerns a pair trapped at Farlington, Hampshire, on 18th December 1966, which were caught together at Minsmere on 5th July 1967 and again at Farlington on 25th November 1967. One of this pair was caught once more at Minsmere on 5th July 1968 and, yet again, at Farlington on 17th December 1968.

Ringing has also shown that a wintering site may be used by Bearded Tits that breed in different colonies. For example, Farlington is used by Minsmere and Walberswick birds, and an individual that bred at Stodmarsh has wintered at Farlington twice. Thatcham Moor, Berkshire, has had wintering individuals from Minsmere, Walberswick and Radipole; and Maple Cross sewage farm, Hertfordshire, from both Minsmere and Stodmarsh.

The apparently inseparable Farlington/Minsmere pair referred to above illustrates the propensity of the species for travelling in

pairs, first noted by Axell (1966). Subsequent records show that two birds together away from the breeding grounds are often a pair and that flocks frequently contain even numbers of males and females. Ball and Smith (1976) noted a similar tendency in their study of the colony at Murston, Kent.

The first records of Bearded Tits ringed abroad being recaptured in England and Wales were in 1965/66, as mentioned under WINTERING, below. Since then, there have been many more records, all as a result of ringing in the Netherlands, and these are shown in table 2.

Table 2. Recoveries of Dutch-ringed Bearded Tits *Panurus biarmicus* in Britain during 1966-73

Data from Hudson (1967, 1968), Spencer and Hudson (1973-75)

Place ringed	Date	Place controlled	Date
Knardijk	21.9.65	Bidston Moss, Cheshire	13.2.66
Knardijk	21.9.66	Frampton-on-Severn, Gloucester	6.11.66
Lelystad, Oost-Flevoland	24.9.66	Droitwich, Worcester	3.12.66
Zuid Flevoland, IJsselmeer	16.10.70	Weymouth, Dorset	28.11.71
Zuid Flevoland	16.10.70	Weymouth	11.12.71
Zuid Flevoland	12.9.71	Weymouth	23.10.71
Zuid Flevoland	18.9.71	Farlington, Hampshire	7.12.71
Zuid Flevoland	9.10.71	Farlington	7.12.71
Kroonspolder, E. Vlieland	1.9.72	King's Lynn, Norfolk	23.12.72
Zwarte Meer West, IJsselmeer	13.9.71	Radipole Lake, Dorset	19.11.72
Zuid Flevoland, IJsselmeer	20.9.72	Portsmouth, Hampshire	16.12.72
Wassenaar, Zuid-Holland	8.10.72	Arne, Dorset	11.12.72
Zuid Flevoland, IJsselmeer	23.9.72	Grafham Water, Huntingdon	20.1.73
Zuid Flevoland	24.9.72	Grafham Water	20.1.73

Table 3. Foreign recoveries of British-ringed Bearded Tits *Panurus biarmicus* during 1966-73

Data from Spencer (1967, 1968), Spencer and Hudson (1975)

Place ringed	Date	Place controlled	Date
Stanpit, Hampshire	21.10.65	near Alkmaar, Noord- Holland, Netherlands	20.8.66
Snodland, Kent	21.11.64	Helgoland, West Germany	22.3.67
Point of Air, Flint	24.10.71	Ostufer Niedersachsen, West Germany	7.1.73
Shotton, Flint	28.10.72	Bergsche Hoofd, Gelderland Netherlands	20.8.73

One recovered on 20th August 1966 in Noord-Holland, where it had presumably bred, had been ringed the previous October at Stanpit in Hampshire. Since then, there have been several examples of Bearded Tits ringed in Britain in winter being caught in a subsequent breeding season on the Continent. This seems to indicate that, as well as regularly crossing the North Sea or English Channel after erupting from their Low Countries breeding grounds, some are able to find their way back in spring. Published records for the period 1966-73 are shown in Table 3.

WINTERING

Occurrences outside the breeding season are far too numerous to be listed in full and only a few of the more interesting and illustrative records are given here.

The year 1965, with its notable eruptions from the breeding grounds, had seen the occurrence of the species for the first time in many counties and some of these birds remained into the early months of 1966. The first ever Irish record involved a male and a female in Co. Louth on 3rd January. In Cheshire, the last individuals from the 1965 influx remained at Bidston Moss until 8th April. One caught there had been ringed at Knardijk, IJsselmeer, Netherlands, on 21st September 1965 (Hudson 1967); this, and six other records of Dutch birds caught in the 1965/66 winter, were the first confirmation that Bearded Tits cross the North Sea. Again in the north-west, in Lancashire, several of the previous autumn's birds remained at Leighton Moss and Martin Mere into the early months of 1966 (one of those at Martin Mere had also been ringed in the Netherlands). In the south-west, the Cornish birds soon left the county and the same was true in Devon, where, on the River Otter, 15 (which spent the day in a kale field, roosting in a nearby reed-bed) dwindled in numbers until the last four were seen on 4th March. The only Welsh record was from Monmouth, where the three 1965 birds remained at Newport Docks into 1966.

The winter of 1966/67 saw a less widespread dispersal than the previous year, although the species occurred for the first time in Durham in December, when up to four were recorded at Dorman's Pool, and there were reports from Yorkshire, Lincolnshire and Somerset. In the West Midlands, one of an original wintering party of five remained at Westwood Park, Worcestershire, until 9th July.

In the winter of 1967/68 there was no marked change. Two were seen at Dawlish Warren, Devon, on 25th November, and most other records were from southern and central England. In Berkshire, two caught at Thatcham Moor in December had been ringed at Minsmere in September. In Hampshire, the usual sites at Titchfield Haven and Farlington held most of the county's total.

In the winter of 1968/69, the bulk of records came from Cambridgeshire, Dorset, Essex, Hampshire, Kent, Suffolk and Sussex; only a few were recorded in other counties.

The autumn of 1969 was notable for the scarcity of records in those counties where most normally occur, this being particularly marked in Kent, Norfolk and Sussex, and the ensuing winter saw no unusual records.

In the following winter, 1970/71, there were three reports from Devon (maximum five), one from Surrey (one at Frensham Little Pond on 18th October) and others at the normal wintering sites elsewhere. A party of eight was seen at Kenfig Pool, Glamorgan, from mid-October into 1971.

After a highly successful breeding season, the autumn of 1971 saw irruptions into counties outside the normal wintering range. Yorkshire had a number of records at several sites, including up to 30 at Spurn on 9th October. In Lancashire, there were up to five from 13th November at Leighton Moss and two were seen flying north near Blackpool on 29th October. In the west, there was an unusual record from Shropshire, four at Boyne Water on 22nd October, and a second county record for Wiltshire. Somerset had more than ever before, at the usual sites, Chew Valley Lake and Berrow Marsh. In Hampshire, one was noted in a kale field near Langstone on 26th November (cf. the 1965 Devon record of birds in the same crop). Other counties which noted more than normal numbers included Surrey, Sussex and Norfolk. In Wales, there were records from Flint (maximum six), Glamorgan (four) and Monmouth (14).

The breeding season of 1972 proved to be even more successful than 1971. High numbers once again bred in East Anglia and there was a noticeable eruption in autumn. There were records in the ensuing autumn and winter from more counties in England than ever before (31), from four in Wales and, outstandingly, from five in Scotland. A party of eight on Cape Clear Island, Co. Cork, on 13th October was only the second Irish record and there were occurrences in the Seillies and the Channel Islands, making this eruption the most spectacular since 1965. Cambridgeshire and Huntingdonshire had larger numbers than ever before. There were records in the north-west, from Cheshire and Lancashire, in the north-east, from Northumberland, from Cornwall and Devon (up to 23 at South Milton Ley during October) and in central counties that usually have very few. For instance, in Berkshire, at least six sites were occupied and as many as 55-60 birds may have been involved, and, in Surrey, records between mid-October and mid-December exceeded the previous county total in the present century. There were two unusual records from Kent, of five in Joyden's Wood on

29th October and of three or more in a young spruce plantation near Hemsted, both of which areas are some distance from water. In this connection, it is noteworthy that Axell (1966) mentioned instances of Bearded Tits moving through thick woodland and equated it with pre-migratory excitement. The 1972 records in Scilly involved a maximum of 25 birds from 18th October until 15th November, on several of the islands. In the Channel Islands, Jersey had up to ten and Guernsey 20 or more at two sites. In Wales, there were six in Anglesey, five in Flint, four in Carmarthen, two in Cardigan and a maximum of ten at both Kenfig and Oxwich in Glamorgan. All those in Wales were from mid-October onwards and the last was seen on 3rd December. The first ever Scottish records, involving one to five birds at each site, were from Aberdeen (Strathbeg), Fife (three sites), Angus (two sites), East Lothian (Aberlady) and Kirkcudbright (Auchenreoch Loch). The earliest was noted rather later than those in England and Wales, on 5th November, and some remained into March.

The winter of 1973/74 also proved interesting, after another successful breeding season. In October, both Devon and Cornwall held higher numbers than usual and Jersey once again recorded some (at least 25). Large numbers were noted in Yorkshire, including 80 at Hornsea Mere on 12th October, up to 150 on Broomfleet Island in late November and early December, and 200 wintering at Blacktoft Sands (A. Grieve *in litt*). Suffolk and Norfolk had more records than usual outside the breeding season, with at least 70 at Titchwell, Norfolk, in November. After the bumper breeding

Table 4. Wintering Bearded Tits *Panurus biarmicus* in Britain by counties during 1966-74

The number of counties recording the species in each winter is indicated. E = English counties, W = Welsh, S = Scottish. The third and fourth columns give details of the previous breeding season at Minsmere, Suffolk (H. E. Axell *in litt.*), as a possible indicator of breeding success in East Anglia. The whole of the 1965/66 winter is included, but only the first half of the 1974/75 winter, up to 31st December

Winter	Number of counties	PREVIOUS BREEDING SEASON AT MINSMERE	
		Number of pairs	Fledging success
1965/66	25E	30	'excellent'
1966/67	18E	33	'moderate'
1967/68	18E	35-40	'high'
1968/69	17E	40	'good'
1969/70	10E	20	'good'
1970/71	16E 1W	60	'high'
1971/72	28E 3W	80	'very good'
1972/73	31E 5W 5S	80	'very good'
1973/74	27E 3W	80	'high'
late 1974	25E 2W	70	'less successful'

season at Minsmere, however, only 50-150 wintered there (H. E. Axell *in litt.*). In Wales, there were records from Flint, Anglesey, Cardigan and Glamorgan.

In the autumn of 1974, several counties noted below average numbers of Bearded Tits, particularly Cambridgeshire, Devon, Essex and Suffolk, but records came from as far apart as Cornwall (two sites, up to six birds in all), Co. Wicklow and Northumberland. In Yorkshire, a large eruption was noted at Blacktoft Sands and about 250 remained through the winter (A. Grieve *in litt.*). At Leighton Moss, breeding Bearded Tits also overwintered, although some high flying was noticed in late September to mid-October (J. Wilson *in litt.*). There were Welsh occurrences in Glamorgan, where some remained the whole year round at Oxwich, and in Monmouth, Flint and Cardigan/Pembroke.

The winter distribution of the Bearded Tit is summarised by counties in table 4.

DISCUSSION

In 1949 and 1950, correspondence appeared in this journal on the possible migratory behaviour of the Bearded Tit (*Brit. Birds*, 42: 289-292; 43: 200). To summarise this briefly, in autumn 1948 Bearded Tits were noted apparently arriving in the north Norfolk reed-beds; the evidence suggested that they might have been of Dutch origin as, in the Netherlands that autumn, some had been noted far from their normal breeding grounds; even if they were English-nesting birds, however, they were a long way from the nearest colonies in Broadland. Short movements, generally thought to have been caused by hard weather, had been observed in both countries before this, but the possibility of long-distance movement, perhaps even over the sea, came as a surprise; the literature described the species as 'sedentary'. Opinion was that a new phenomenon had been observed, and, in later years, eruptions from colonies, wintering flocks far from breeding sites and, eventually, new colonies led some people to believe that a new 'strain' of Bearded Tit had evolved.

It now appears more likely that some have always left and travelled long distances from the breeding sites. In the days when there were few competent ornithologists and no ringers in the reed-beds, most of these birds would have gone unnoticed and the few that were seen would have been regarded as the 'vagrants' described by Witherby *et al.* (1940). The severe winter of 1946/47 reduced the population so drastically that records away from the colonies in the following years were naturally few. The subsequent build-up in numbers coincided with increased interest in bird-watching and ringing, and it is not surprising that Bearded Tits began to be

noticed in localities where they had been recorded before, reinforcing the idea of a new 'dynamic type' of Bearded Tit. It is more likely that the species has never been sedentary.

The immigration of Dutch birds that was thought to have taken place in 1948 probably helped the British population to recover from its catastrophic decline in 1946/47. Influxes from the Netherlands certainly now boost our population in autumn and winter (though perhaps not every year), some staying to breed and some returning to the Dutch colonies, as shown by ringing results.

The question whether the Bearded Tit's movements can be described as true migration has been discussed by Pearson (1976) and it is not proposed to deal with it here. The definition is a difficult one, since there is no set pattern of behaviour. In the autumn, after a period of excitement and numerous false starts, many Bearded Tits leave their nesting areas. They move overland in all directions; some travel hundreds of miles, others much less. While some go in different directions in different years, others remain faithful to one wintering site. Similarly, the following spring, some return to the site where they spent the previous summer, while others go elsewhere. Some remain at the colony throughout the winter, moving only in the hardest weather.

At the wintering sites, there is often a mixture from two or more different breeding colonies. It seems likely that interchanges take place, perhaps due in part to pairing, so that, for instance, Bearded Tits bred in Kent travel to Minsmere with those returning there. Where a wintering site is used exclusively by birds from a particular breeding colony, it may be that they all find their way back to that colony in the spring. Young that travel without adults may behave differently from those that accompany older birds: the behaviour at different ages has been little studied. Bearing in mind the species' apparent propensity for travelling in pairs, uneven sex-ratios may encourage interchanges, when flocks from a different colony are encountered. Further ringing will doubtless shed more light on these and other aspects of the complex movements of the Bearded Tit outside the breeding season.

The dispersal of Bearded Tits has certainly had two advantages for the species. First, it has provided a better chance of their surviving a severe winter, since wintering sites are so widely separated geographically. Secondly, it has resulted in their discovering sites (or rediscovering historic ones) that are suitable for breeding. Their adoption of these sites for nesting has resulted in the expansion of the breeding range documented above.

Many areas used regularly by Bearded Tits in winter are abandoned in spring and it is open to speculation why the birds do not remain to breed as they do in other former purely wintering

sites. The major factors presumably include freedom from disturbance (perhaps rather more necessary in the breeding season than in winter) and availability of suitable nest sites, nest material and food for both the adults and young during the spring and summer. The species does nest in small reed-beds (although all the large colonies are in extensive reed marshes), but the shape of the smaller beds may be important, in so far as it affects the proximity of the nest site to the edge of the bed. This will also be linked, presumably, to whether the bed is surrounded by water or land. Bannerman (1953) noted that the species likes to nest in a mixture of reeds and sedges *Carex spp.*, using some of the latter for nest-building, so this may also be an important factor in nest site selection. In winter, Bearded Tits feed largely on the seeds of reeds and other plants, such as fat-hen *Chenopodium album*, great willowherb *Epilobium hirsutum* and common nettle *Urtica dioica* (Bibby 1974), but in the breeding season the young are fed on invertebrate food. Availability of sufficient food for the young must influence the choice of site. The number of breeding pairs present at a site must depend on the same factors, together with the territorial needs of each pair, which are presumably different in the breeding season and in the winter.

Bearded Tits will feed outside reed-beds in winter (e.g. in weeds and even in kale fields: see above). Reed-beds may be used only for roosting and shelter from disturbance at this time of year, and it is possible, perhaps, that some Bearded Tits live independently of them, although there appears to be no evidence of this as yet. Breeding outside reed-beds is much less likely; there are plenty of beds of *Phragmites* not yet used by the species for nesting. Much more work needs to be done, however, on all aspects of the Bearded Tit's breeding biology, to determine its precise requirements. The information obtained would be useful both for assessing the potential value of a site and for improving existing sites.

The main threats to the survival of the Bearded Tit in Britain are disappearance of its habitat (whether for nesting or wintering) and severe weather. The conservation organisations protect several major breeding sites and some used purely for wintering. Some are owned outright and are therefore safe from development, while others are more or less safe according to the nature of the lease agreements. Natural disasters, such as fire, are fortunately rare in these reed-beds. Additionally, the good geographical spread of the protected sites should mean that, even in a severe winter, some Bearded Tits will survive somewhere.

Since the species feeds on seeds in winter, there is usually plenty of food at these sites for them, but it may be unavailable, beneath ice, frost or snow. Experiments with the provision of weed seeds at two Royal Society for the Protection of Birds reserves, Blacktoft

Sands and Minsmere, have indicated that action of this sort could make a contribution to the survival of the species in a really hard winter (M. J. Everett and A. Grieve verbally).

Leaving aside the possibility of epidemic disease (which could be easily transmitted by winter/summer interchanges), the future of the Bearded Tit as a British breeding bird seems assured. The question of whether the present expansion can continue depends on the availability of further suitable reed-beds and their protection, but perhaps most of all on the severity of future winters and the occurrence of sudden cold spells in spring and summer. It seems inevitable that the next hard winter will deplete numbers considerably, but the recovery may be faster than after 1946/47, or even 1962/63, owing to the greater number of individuals likely to survive.

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SUMMARY

The status of the Bearded Tit *Panurus biarmicus* in Britain and Ireland during 1966-74 is examined. The spread of the species into new breeding areas and its increase in numbers is documented on a county-by-county basis. Some aspects of movements within Britain and to and from the Continent are discussed and the numbers wintering at sites away from the breeding colonies examined and related to eruptions. The advantages that dispersal in winter has had are discussed and the future of the species in Britain is assessed.

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Effects of sea conditions on rates at which Guillemots feed chicks

T. R. Birkhead

Studies of the effects of sea and weather conditions on the ability of seabirds to capture prey have almost all concerned those species that Ashmole (1971) classed as 'surface-plunging', for example terns (Sterninae). There is little information for the species, such as auks (Alcidae), that engage in 'pursuit diving'. During the course of a study of Guillemots *Uria aalge* on Skomer Island, Dyfed, however, I was able to record the rates at which adults fed chicks in a variety of weather conditions.

During June and July 1974 and 1975, I made observations continuously between 13.00 and 17.00 hours GMT, on 22 separate occasions, from a hide situated about 20 m from a cliff ledge supporting 38-45 breeding pairs of Guillemots. I recorded feeding rates and the species and sizes, judged against the length of the adults' bills (45-50 mm), of the fish fed to chicks of known age. During each observation period, I also recorded wind speed (Beaufort scale 1 to 8: from still air to gale), sea conditions (ranked from 1 to 3: calm, medium and rough) and cloud cover (ranked from 1 to 8: clear to overcast).

Over 99% of all 1,140 prey items were fish of the herring family (Clupeidae), and 46 picked up from ledges were identified as Sprats *Sprattus sprattus*, one of the commonest of the six European species. All fish were approximately 10 cm in length and there was no apparent change in size with weather conditions, age of chick or date.

The rates at which the adult Guillemots brought food to their chicks were compared for different environmental conditions, using a step-up multiple linear regression. The analysis was confined to chicks between three and 16 days old, because chicks younger or older than this were fed at lower rates; the mean age at fledging was 21 days. Although wind speed was usually correlated with sea

Table 1. Effect of weather and sea conditions on rates at which Guillemots *Uria aalge* fed chicks aged three to 16 days, Skomer Island, Dyfed

Percentage variation accounted for by each independent variable, as shown by step-up multiple regression analysis. Sea conditions: $p < 0.01$

	Wind speed	Sea conditions	Cloud cover
Alone	14%	32%	4%
With sea conditions	33%	—	33%

conditions, I made a point of conducting observations on days following strong winds, when the sea was still medium or rough, though the wind had dropped, to try to distinguish between sea and wind effects. The analysis showed that cloud cover and wind speed were not important variables, but there was a significant negative relationship between the feeding rates and sea conditions, which alone accounted for 32% of the variation in feeding rates (table 1 and fig. 1).

Thus, the provisioning rate was lowest during rough seas, suggesting that the ability of adults to locate and capture prey is poorest in these conditions. Tuck and Squires (1955) stated that Br nnich's Guillemots *U. lomvia* on Atpatok Island, Canada, did not even leave the colony to seek food for their chicks in stormy weather. Pettingill (1939) and Boeker (1967) both noted that gale force conditions reduced feeding success in terns, and Dunn (1973) was able to demonstrate a relationship between sea-surface con-

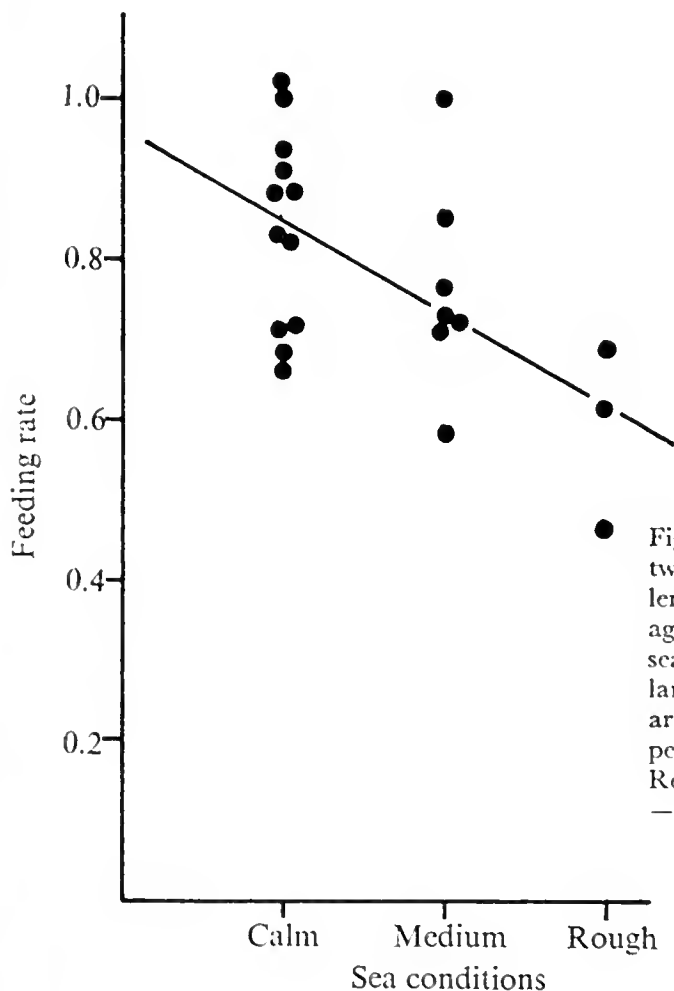


Fig. 1. Relationship between rates at which Guillemots *Uria aalge* fed chicks aged three to 16 days and sea conditions, Skomer Island, Dyfed. Feeding rates are shown by number of fish per chick per four hours. Regression equation: $y = -0.12x + 0.97$ ($F_{1,20} = 9.3$, $P < 0.01$)

ditions and fishing success by Common *Sterna hirundo* and Sandwich Terns *S. sandvicensis*. Reduced fishing success in surface-plunging species, such as terns, may be due (a) to fish moving into deeper water during heavy seas, and (b) to birds experiencing difficulty in hovering and aiming before diving when there are strong winds (Dunn 1973). Clearly, (b) is not applicable to auks, but (a) might be. Data from commercial Sprat fisheries show that catch rates decline after prolonged bad weather, and echo-survey records show that this is because the Sprat shoals disperse. Dispersal probably occurs during the night, when the fish are close to the surface and are thus within the zone of wind-induced surface currents (P. O. Johnson *in litt.*).

Wrecks and eruptions of seabirds are frequently associated with stormy conditions (Potts 1969, Holdgate 1971), and Guillemots appear to be particularly prone to such events. My data suggest that Guillemots have difficulty in finding prey in heavy seas, and this is supported by information on the condition of wrecked Guillemots, which are often emaciated and lack fat deposits (Holdgate 1971, Bailey and Davenport 1972), indicating that starvation has occurred.

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Viewpoint *Louis J. Halle*

Louis Halle, a professor at the Graduate Institute of International Studies in Geneva, was formerly a government official in Washington. Among his many books, those published in Britain include The Sea and the Ice: a Naturalist in Antarctica (1973). He is a honorary vice-president of the Audubon Naturalist Society in Washington, and winner of the John Burroughs Award for his book Birds against Men (1938).

The appreciation of birds

The appreciation of nature precedes its conservation, for no-one is concerned to conserve what means nothing to him. How, then, does one gain this appreciation? For the sake of simplicity, let me here confine my answers to birds.

When I was brought up, in the United States some 40 or 50 years ago, the appreciation of birds depended in large part on a literary tradition that has since lapsed. John Muir, in his essay on 'The Water-Ouzel', taught us how to see the American Dipper *Cinclus mexicanus*. H. D. Thoreau, in *Walden*, taught us how to see the Common Loon (Great Northern Diver) *Gavia immer*. W. H. Hudson, writing about life on the Argentine pampas, taught us how to see the Upland Sandpiper *Bartramia longicauda*.

Before Roger Tory Peterson came along with his field guides, the information that the books provided for identification was relatively inadequate; but the emphasis, in those days, was less on identification than on appreciation. The standard handbook that we carried, where we now carry only field guides to identification, was Frank M. Chapman's *Handbook of Birds of Eastern North America*, which had a little literary essay on each species (just like Hudson's *British Birds*, or A. Thorburn's four volumes under the same title, or a dozen other works I could mention). The essays, in Chapman and the other works, taught us appreciation. Then, in 1934, along came Peterson with the first of his series of guides, which had no other purpose than that of facilitating identification. It is not his fault that these (and the competing guides of the same sort that then began to appear) tended to displace everything else. Since the revolution he inaugurated, anyone who wants to know the birds of America or Britain is apt to think it enough to have one of these pocket books on identification. But it is not enough, because identification is not enough.

Even the seeing of the bird, in order to identify it, is not enough in itself, although those who confine themselves to the game of bird-listing may have the impression that it is. What significance can a Swallow *Hirundo rustica* have for one who knows nothing about

it? My appreciation of the Swallow depends on my knowledge of many facts, such as that it winters in Africa and is one of a genus of hirundine birds including the Red-rumped Swallow *H. daurica*, and the Striated Swallow *H. striolata* of India. And if I know what writers going back to the ancient Greeks have written about the Swallow, it will mean still more to me when I observe it as Aristotle, Pliny, and Shakespeare did before me. 'A finer music is in the song (of the Nightingale)', wrote W. F. Badè, 'since Keats listened to the notes from the thicket on the hill':

The voice I hear this passing night was heard
In ancient days by emperor and clown:
Perhaps the self-same song that found a path
Through the sad heart of Ruth, when, sick for home,
She stood in tears amid the alien corn . . .

But what shall it profit me to identify the Nightingale by the plate in Peterson and, having put it down on my list, pass on without knowing anything about it? (To the lister, every bird equals every other bird, because quantity is what matters to him.)

Of course, there are the five volumes of *The Handbook of British Birds*, which, amid much detailed technical information, also tell us something about each species, under such headings as 'Field-characters and General Habits' and 'Display and Posturing', but in a way as little likely as possible to arouse the kind of appreciation to which I refer. (In the long evenings of my youth, after supper, I virtually memorised Chapman's *Handbook*, but the British *Handbook* would hardly arouse a like interest.)

And now I come so close to home that the reader had better note the editorial disclaimer that follows these paragraphs. One has the impression that the study of birds has, in large part, been reduced to the quantification of whatever can be quantified, a process that, although it has its uses, provides no insight. I do not object to the compilation of quantitative data in itself, but I do object to the tendency for such compilation to replace everything else in the study of birds. If a bird were nothing more than an automaton that fed so many spiders, so many insects, and so many centimetres of earth-worm to so many nestlings per hour between certain hours of the day at certain stages of the nesting cycle, then I would have no basis for caring about its conservation.

So I return to the principle that appreciation precedes conservation. And appreciation has always meant the aesthetic and philosophical appreciation sustained by a long tradition of English literature that has now lapsed.



PLATE 40. Above, Long-eared Owl *Asio otus*, West Germany photo: Gunter Ziesler; inset, Short-eared Owl *A. flammeus*, Lincolnshire, March 1976 photo: Keith Atkin. Below left, Long-eared Owl in flight, showing deep beat of broad, rounded wings, relatively uniform upperparts and fine undertail barring, West Germany photo: Gunter Ziesler; right, two views of Short-eared Owl in flight, showing more pointed wings (though allowance must be made for the difference in angle of view), generally pale face with dark areas around eyes and, most distinctive, the pale underparts, with dark streaks confined to upperbreast and neck, Lincolnshire, June 1973 photos: Keith Atkin — see pages 281-287



PLATE 50. Left (1-4), Little Buntings *Emberiza pusilla*; right (5-8), Reed Buntings *E. schoenichus*. Little Bunting: 1 breeding adult, 2 immature (October), 3 as 2 but with black crown stripes obscured by pale tips (frequent), 4 as 3 but crown stripes appearing almost uniform chestnut (very rare), top left flight silhouette. Note fine triangular bill, eye ring, buff face of adult (1) but white throat of most immatures (2, 3), wing-bars, sharp streaks on clean underparts and pale central crown reaching bill. Compare with Reed Bunting: 5 male in first spring moult, 6 immature (September) with pale head striped chestnut on crown (infrequent), 7 immature with dark head and heavy markings (frequent), 8 female or immature (October) of typical appearance. Note stubby bill, lack of obvious eye ring, pronounced moustache (not 6) spreading into long, diffuse streaks on usually dull underparts and variable head pattern lacking pale central stripe reaching bill (even on 6). Note also nervous spreading of tail (8). (Pencil drawings from photographs and field sketches: D. I. M. Wallace)



PLATE 20. Adult Thrush Nightingale *Luscinia luscinia* standing on edge of nest as young beg for food, Denmark, July 1965. pages 265-271 photo: Ib Trap-Lind



PLATE 30. Adult Thrush Nightingale *Luscinia luscinia* at nest, Schleswig-Holstein, Germany, June 1970: above, with caterpillar for young two-three days old (not visible in photograph); below, note the whitish markings on the crown, nape and mantle, a character found in most adult individuals (photos: N. W. Orr)





PLATE 31. Above, approaching the nest from within cover, the parent Thrush Nightingale *Luscinia luscinia* raises and fans its tail as it bends forward towards its young. Below, still with a caterpillar in its bill, the adult pauses warily before releasing the food; both parents feed the young. (photo A. H. Orr)





PLATE 32. Above, nest of Thrush Nightingale *Luscinia luscinia* with the normal clutch of five eggs, Denmark, June 1966 (photo: Ib Trap-Lind). Below, perched on a branch, this adult shows the spotted breast markings, particularly at the sides, which help distinguish it from the Nightingale *L. megarhynchos* (photo: N. W. Orr)





PLATE 51. Little Bunting *Emberiza pusilla*, caught for the purpose of ringing, Fair Isle, Shetland, October 1967 (photos: R. H. Dennis). Note: distinct pale eye ring; uniform check patch, except for pale spot at rear, with black lower outline hardly reaching to eye, and not to bill (which it does in Reed Bunting *E. schoeniclus*); rather long, triangular, pointed bill; short legs; crouching attitude; flat, sloping forehead; and neckless, hunch-backed appearance.

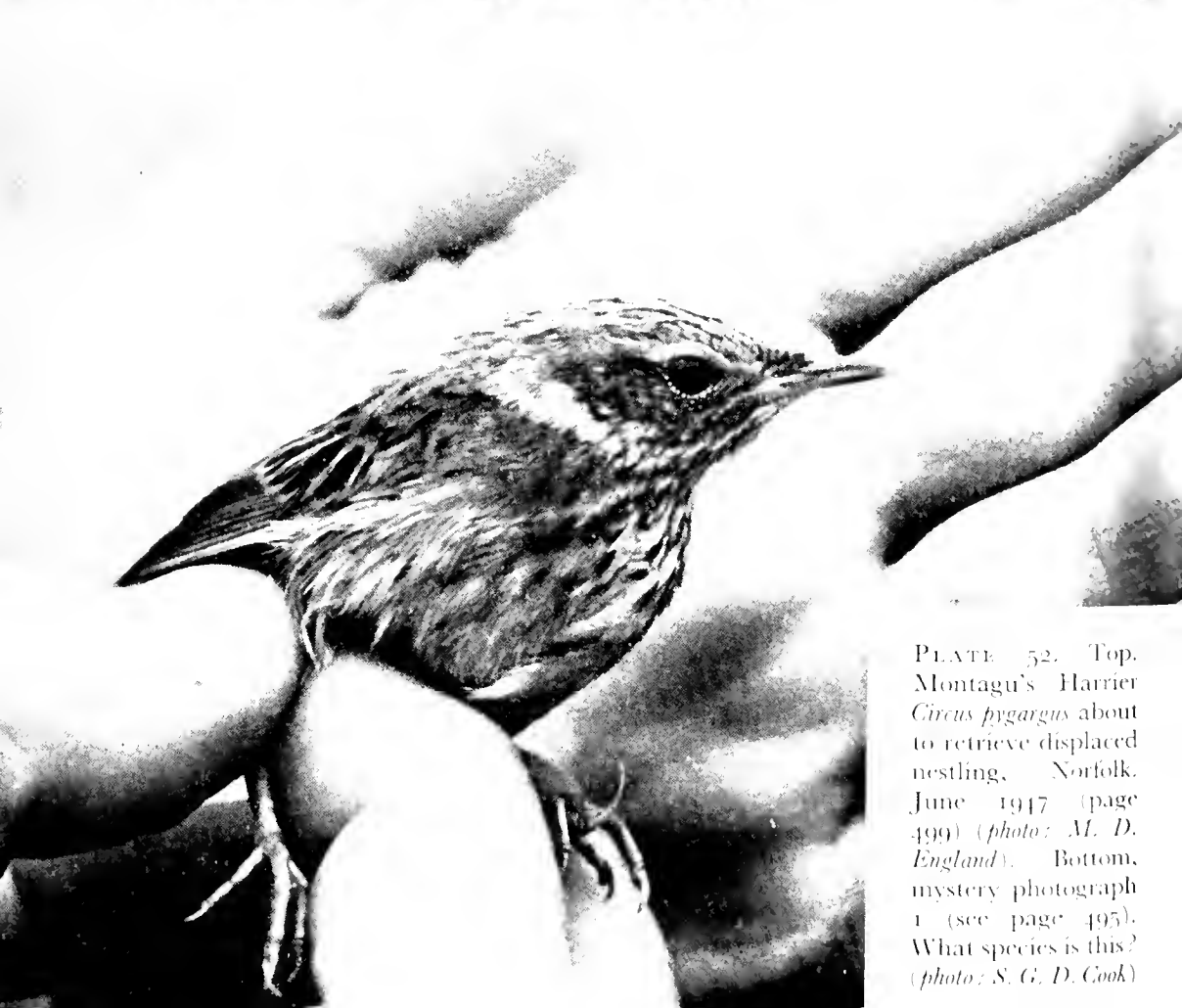


PLATE 52. Top, Montagu's Harrier *Circus pygargus* about to retrieve displaced nestling, Norfolk, June 1947 (page 499) (photo: M. D. England). Bottom, mystery photograph 1 (see page 495). What species is this? (photo: S. G. D. Cook)

New feature

Mystery photographs

As one of several new features planned for this journal, we shall be publishing each month a mystery bird photograph. The following issue will reveal the answer, together with a text drawing attention to the main identification features. We hope, in this way, not only to provide readers with an interesting problem each month, but also to produce a series of useful and informative photographs and texts relating to identification problems. The first of these mystery photographs appears as plate 52b; the bird's identity will be disclosed in the January issue.

We invite the submission of good quality photographs suitable for inclusion in this series. Eds

Notes

Diving rates of Great Northern Diver An adult Great Northern Diver *Gavia immer* was present at Chew Valley Lake, Avon, in November 1974, when the following observations, mainly concerning the bird's diving behaviour, were made. Preliminary observations had shown that it sometimes surfaced between dives for less than a second. Since precise timing of such frequent events with stopwatch and notebook did not seem feasible, the diver was carefully watched and its activities recorded on tape. Events were timed sequentially on playback. The machine used (Uher 4000L) has excellent speed stability.

Observations were made in four periods, totalling over two hours, during which no interval on the surface between dives exceeded 33 seconds. These fell within longer intervals, during which the bird was continually hunting. Breaks between hunting periods were well marked by longer intervals on the surface, the shortest of which was $1\frac{1}{2}$ minutes, and often by preening. The separate results for the four periods are presented in table 1. They show reasonable constancy in the rate of diving, the percentage of time spent under water, and the medians of duration of dive and of periods between dives. Fig. 1 shows the distribution of the total observations on the duration of dives; this is non-normal, with a plateau towards the

Table 1. Diving rates of a Great Northern Diver *Gavia immer* at Chew Valley Lake, Avon, November 1974

Period	Length of period (mins.)	Number of dives	Diving rate (no./hr)	% time submerged	Median dive (secs.)	Median between dives (secs.)
1	32.5	63	116	72.4	22	8
2	32.5	68	126	73.8	21	7
3	19.5	37	114	74.2	23	8
4	45.0	90	120	70.4	21	8

middle of the range. The median for 258 dives is 21 seconds (95% confidence limits ± 1.4 seconds, SD 11 seconds). This result is markedly different from previous published figures: H. W. Robinson 'found about 40 secs. usual' (Witherby *et al.* 1940); Bannerman (1959) quoted the observations of Prof. Dr F. Salomonsen, 'usually for nearly half a minute', and of Major R. F. Rutledge, 'normally of about 45 sec'; Olson and Marshall (1952) recorded an average of 43 seconds; and Palmer (1949) timed 40 dives between 8.5 and 60 seconds.

Ladhams (1968) found the diving times of grebes *Podiceps spp* at Chew Valley Lake to be shorter than those previously reported and suggested that this reflected, among other factors, the relatively shallow water of the lake. This is likely to be an acceptable hypothesis only if the prey density was high and if the majority of dives resulted in a catch. At no time during the four periods, or during other observations, was the diver seen to bring any prey to the surface, and no other pattern of behaviour indicating a successful dive was apparent.

Of 258 dives, only three (of 78, 89 and 97 seconds) were over one minute in duration. It is impossible to state with certainty, however, that these were maximum dive times, because a short

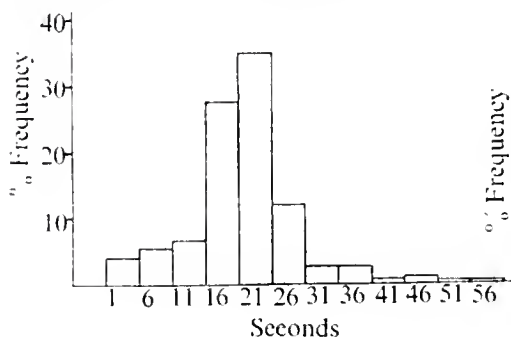


Fig. 1. Durations of dives of a Great Northern Diver *Gavia immer* at Chew Valley Lake, Avon, November 1974. There were three observations of dives of more than 60 seconds

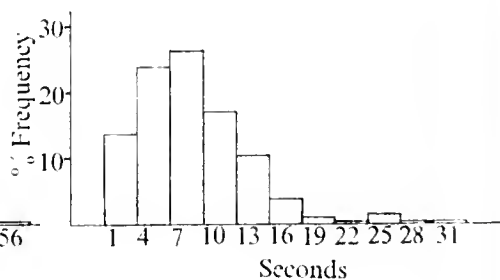


Fig. 2. Durations of periods between dives of a Great Northern Diver *Gavia immer* at Chew Valley Lake, Avon, November 1974. There were three observations of pauses of less than 1 second

period on the surface may have been missed (sometimes the diver's reappearance and its next dive were almost simultaneous). It is also possible that breaths were taken with only the bill above water (see Palmer 1962) and that these instances were overlooked, even though the diver was for much of the time within 200 metres. The non-normal distribution of the dive times, with greatest frequency in the region of the median, might be explained by such dives being of a reconnaissance nature, with longer ones representing a chase or catch.

Fig. 2 shows the distribution of all the observations on the duration of the period between dives; this is also non-normal. The median is 8 seconds (95% confidence limits ± 0.6 seconds, SD 5 seconds).

The habit of immersing the head beyond the eyes when searching for prey has been reported for the Great Northern Diver (e.g. Bannerman 1959) and was recorded at Chew. It might be expected that a diving bird would be adapted to compensate for distance distortion caused by refraction, and that, therefore, immersion of the eyes to search would be unnecessary in normal conditions. Three factors could interfere with vision through the water surface: disturbance of the surface due to rain or to wind, and glare caused by reflection. During period 1, which included intervals of rain and sun, the diver immersed its head from one to five times during 32 of the periods between dives; these tended to occur in consecutive runs, corresponding to times when rain or sun was recorded. In contrast, during period 4, which, although windy and overcast, included no rain or sun, the diver immersed its head only sporadically (eight times).

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Winter feeding behaviour of Great Northern Divers During the winter months, from 1971 to 1974, I observed the feeding behaviour of at least 30 Great Northern Divers *Gavia immer* in and around the Penzance and Newlyn harbours, Cornwall. I found

their staple diet in these places was rather small, drab or dirty yellow to dark green crabs. Dr G. W. Potts of the Marine Biological Laboratory, Plymouth, suggested (*in litt.*) that they were either Shore Crabs *Carcinus maenas* or small Edible Crabs *Cancer pagurus*. Five specimens, obtained by Alan Griffiths by diving in the area, proved to be the former species, which is mentioned in *The Handbook* (1940: 115) in the list of the food of Great Northern Divers. The three smallest specimens had soft carapaces, which could easily be dented by gentle finger pressure, but the others were larger and harder-shelled.

The divers dealt with the crabs in a variety of ways. Judging by their throat gulping and quick head-shaking movements on resurfacing, it was obvious that they sometimes swallowed their food while still under water. When a diver appeared with a crab in its bill, it often raised its head and bill and then manipulated the crab or partially crushed it to facilitate easier swallowing. Occasional crabs, perhaps because of their size or hard carapaces, were discarded by quick, flicking movements of the bill. Commonly, a diver brought a crab to the surface and then, having held it in its bill for a short while, dived again with it. The diver either reappeared without its prey, which may indicate that it had swallowed it, or brought it to the surface once more. Sometimes, the diver then washed its prey with side-to-side movements of bill and head just below the surface, and then swallowed it while still immersed. More often, however, the bird would dive with the crab for a second or even a third time before swallowing it. In these instances, the diving times were of such short duration as to rule out the possibility of the original crab being discarded and another captured.

BERNARD KING

Gull Cry, 9 Park Road, Newlyn, Cornwall

Resting of Cormorants on inland passage With reference to the note by S. W. M. Hughes on Cormorants *Phalacrocorax carbo* roosting on a spire (*Brit. Birds*, 68: 429), the following observations may be of interest. During most months from February 1975 to August 1976, I have on 23 occasions noted Cormorants perched on a particular stretch of electricity transmission lines near the River Axe, not far from Loxton, Somerset. Usually there was only one at a time, but as many as four were sometimes present and some remained for several hours. The locality is 8 km from the coast and almost on a direct flight path to Cheddar Reservoir, Somerset, which lies a further 6 km inland. Numbers on the transmission lines showed some correlation with counts there, including two to four on many dates

from October to early April, when there were usually six to twelve at the reservoir.

BRIAN RABBITS

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Montagu's Harrier retrieving displaced nestling Most birds make little attempt to retrieve young that have fallen from the nest. Although they sometimes show awareness of the situation, and may even try to feed the displaced nestling (especially if near fledging), they usually completely ignore it.

In June 1947, I photographed Montagu's Harriers *Circus pygargus* at their nest in Norfolk. This nest, in a wet marsh, was more substantial than usual—for, in dry sites, this species may make no nest at all. On one occasion, the arrival of the female was greeted with such excitement by the chicks that, in the scramble for food, the youngest of the brood was pushed over the edge of the nest and lay below, cheeping pitifully. Meanwhile, the female fed the older chicks and settled down to brood them, but she was obviously uneasy and kept looking down at the displaced youngster. Eventually, she stepped out of the nest (see plate 52a), grasped the chick in her bill 'by the scruff of its neck', replaced it among the others and proceeded to brood her now complete family.

M. D. ENGLAND

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Unusual plumage of Greenshank Within a mixed group of waders feeding on the mud round Chew Valley Lake, Avon, at midday on 11th August 1975, there was a bird with the general structure, size and behaviour of a Greenshank *Tringa nebularia*, but with a different plumage. The whole of the upperparts, including the wings, were rather darker than normal; the breast and belly were rusty beige, the rump and tail were completely beige, with no barring or spotting, and the outer tail features were light cinnamon. The legs were light green.

R. Harkness and I observed this bird closely and considered that it was melanistic.

D. E. LADHAMS

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Bryan L. Sage, the author of 'The incidence of albinism and melanism in British birds' (*Brit. Birds*, 56: 409-416), has commented that he can think of no explanation other than melanism for the curious colour of this individual and that it appears to be the first record of melanism for the Greenshank. Apart from a partial albino in Norfolk in 1937, there are no other records of plumage variations in this species in Britain, but an almost pure white one was reported in the Netherlands in 1952. EDS

Diet of Greenshank on migration In the autumn of 1973, R. Berry and I carried out routine pellet collections at roosts of Redshanks *Tringa totanus* and Curlews *Numenius arquata* at Snettisham, Norfolk, as part of a feeding study. During this period, we discovered pellets similar to those of Redshanks, which we suspected were formed by Greenshanks *T. nebularia*. Later, RB observed several Greenshanks producing pellets, which were subsequently collected. These tended to be slightly longer and thinner than those of Redshanks (up to 3.0 cm \times 1.0 cm) and were of a greyish-white, granular appearance. (For a description of Redshank pellets see J. D. Goss-Custard and R. E. Jones, *Bird Study*, 23: 233-243.)

Analysis of 16 pellets under a binocular microscope revealed that the granular texture was due to the pellets being composed almost entirely of fish bones, especially the auditory bones (otoliths). The species concerned was the Common Goby *Potamoschistus microps*. An attempt was made to assess the number of fish ingested per pellet, by counting the largest of the otoliths, as has been done by C. Swennen (*Limosa*, 44: 71-83), but this proved unsatisfactory owing to the fragmentation of these bones. It was established, however, that all the pellets contained fish fragments and that the number of fish present per pellet ranged from 26 to over 150. The second most important prey species was the shrimp *Crangon crangon*, which occurred in five pellets, with up to ten individuals per pellet. For this species, mandibles were counted. Other minor prey were ragworms *Nereis spp.*, found in eight pellets (maximum of three per pellet), spireshells *Hydrobia spp.*, found in four pellets (maximum of three per pellet), and Shore Crab *Carcinus maenas*, found as traces in two pellets. In addition, eight pellets contained traces of up to two insects, all beetles (Coleoptera) except for a single fly larva (Diptera).

These results, though based on a very small sample, agree with those of Swennen for the Dutch Waddenzee area, in that the major prey of Greenshanks during the autumn migration is small fish, but they differ in that both shrimps and crabs are of considerably less importance.

R. E. JONES

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Terek Sandpiper overwintering in Devon From 17th November 1973 to 5th May 1974, a Terek Sandpiper *Xenus cinereus* was present on the estuary of the River Plym, Devon. This was the first occasion on which the species had overwintered in Britain, and also western Europe, and some notes on its habits, plumage and favoured habitat during its stay may, therefore, be of interest.

The estuary is small and lies totally within the city of Plymouth. The portion liked by waders runs roughly north-east to south-west and is three kilometres long by about half a kilometre at its widest,

bordered on the north by a railway line and main road and on the south by woods, water meadows and a rubbish tip. At low water, it has soft mud banks sloping gently to the main channel, with small areas of shingle and firmer mud near the channel and at the highest limit of the tide. It holds quite a high number of the commoner waders in autumn and winter, though Spotted Redshanks *Tringa erythropus* and Greenshanks *T. nebularia* do not overwinter, as they do on other estuaries nearby.

The Terek Sandpiper was first discovered in loose company with Redshanks *T. totanus*, which remained its usual companions throughout its stay. It was also seen at times with other waders, particularly Dunlins *Calidris alpina* and Golden Plovers *Pluvialis apricaria*; this gregariousness with other species was noted in wintering Terek Sandpipers at Aden by Browne (1949). It was, however, quite solitary on occasions. About two hours after high water, it usually appeared with Redshanks on the first mud uncovered at the top of the estuary, then followed the falling tide. Feeding was at random during the low-water period, but, after the first flood tide, it would make its way back up the main channel. At times, it stayed near the head of the estuary through most of a low-water period. It roosted with Redshanks on the timbers of an old wreck or on the railway embankment.

In good conditions, the sandpiper was relatively easy to locate, as its gait was so much faster than those of the other waders and, with legs set well back and chest thrust forward, the appearance of toppling over, noted as a good field mark by Wallace (1973), was very evident. When feeding at the tide's edge, it usually just pricked the mud, but soft mud farther from the water was probed deeply. Food was generally washed in a surface pool, but sometimes in the main channel, which was at times more than six metres away. Its bill was held at a more vertical angle than those of Redshanks, and it sometimes probed at any angle, in towards its legs.

When first found, the bird was in complete winter plumage. The head, neck, mantle and wing-coverts were pale grey; and on the closed wing the primaries were dark, giving the effect of a black band. The underparts were pure white, with grey smudges on each side of the breast, similar to those of the Common Sandpiper *T. hypoleucos*. There was also a faint dark line through the eye. Breeding plumage was assumed before its departure, certainly by mid-April and possibly a little earlier: the upperparts became darker grey, streaked with brown, and two dark lines on the mantle were clearly visible when the bird was moving away from the observer. The grey breast smudges developed into a darker grey pectoral band, and the neck above this became grey; the rest of the underparts remained white.

Ferguson-Lees (1959) remarked that the leg colour of four breeding Terek Sandpipers, which he observed near Oulo, Finland, varied from deep and almost dirty orange to bright orange-yellow. On its arrival, the Plym bird had bright yellow legs, tending to look slightly green in some lights, but the legs darkened when breeding plumage was assumed and, in good light about a week before its departure, were a dull red. Most of the literature states that the legs are yellow or orange, with general emphasis on brightness. Ferguson-Lees's statement, together with the observations on the Plym bird, tend to indicate that at least not all Terek Sandpipers develop bright orange legs with breeding plumage; and I have also been unable to find any reference to a seasonal colour change.

When the Plym Terek Sandpiper arrived, the base of its lower mandible was yellow, though this became dull red later. The bill, although distinctly uptilting, did not have the curve shown in several illustrations.

This was the fifth British record of a Terek Sandpiper within five years and the tenth in all. The increased frequency of occurrence might indicate a thriving and possibly expanding population in the western part of its breeding range in Finland, but this is not borne out by the facts. The Finnish population is still small and numbered fewer than 15 pairs in 1975, and there is no proof that they have become more abundant, at least around Oulo, since the first observations there in 1955. It is possible, as suggested by Smith *et al.* (1974), that there has been some change in the migration pattern over recent years, which has accounted for the relatively frequent occurrences in Britain. According to Drenckhahn and Zwergel (1973), the species is still extremely rare as a migrant in north-western Europe, even as near to its breeding sites as Sweden, although it appears to be occurring more frequently, especially in western Germany in the last few years. It is interesting that, with the exception of the British records, the majority of occurrences in north-west Europe have been in autumn.

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We are grateful to D. W. Evans and K. E. Vinicombe for bringing to our attention another record of an overwintering Terek Sandpiper in the western Palearctic. These observers noted a single individual at Mahares, Gulf of Gabes, Tunisia, on 7th January 1975, and added that its legs were very noticeably orange. EDs

The pattern of Mediterranean Gull records at Blackpill, West Glamorgan Dr W. R. P. Bourne (*Brit. Birds*, 63: 91-93) analysed the records of Mediterranean Gulls *Larus melanocephalus* in Britain during 1958-62 and suggested that the species often, but not always, undertakes three migrations annually—a post-breeding dispersal, a late-autumn movement to winter quarters and a return to breeding grounds in spring. At that time, it was thought that first-year Mediterranean Gulls were more often overlooked than older birds, though in recent years this bias is likely to have been reduced. Dr J. T. R. Sharrock (*Brit. Birds*, 65: 187-192) showed that the proportion of first-year birds recorded increased during the 1960's.

I have collected the records of Mediterranean Gulls at Blackpill, West Glamorgan (see *Brit. Birds*, 67: 17-24) for the period 1970-75 (with the help of H. E. Grenfell for the last year), when probably few individuals were entirely overlooked and most age determinations were correct. Records became confused in August and September, however, due to change-over to observers and alteration in the appearance of individual birds due to moult, so some new birds may have been overlooked or dismissed as earlier ones in transition.

The arrival dates are illustrated in fig. 1. Adults and second-year birds (remembering that some of the latter can look identical to older birds) arrived mostly in late March or April (just one on 1st May) and from the very end of June through July (see fig. 2, which shows more clearly the May-June gap). First-years arrived from mid-April to late May, with a few in mid-June and July and one in October.

Adults made only brief stays in spring, but, often, longer ones in summer, when they were in moult (I first noted moult on a breeding-plumage adult on 30th June). The late autumn arrivals often remained throughout the winter, though evidently moved around locally, as lengthy gaps were sometimes evident in the records of their presence at the Blackpill roosts. First-year birds more often made prolonged stays in spring (having no need to visit a breeding site), even remaining to moult (which was well advanced by mid-July), though many moved on before that. Some, perhaps, stayed

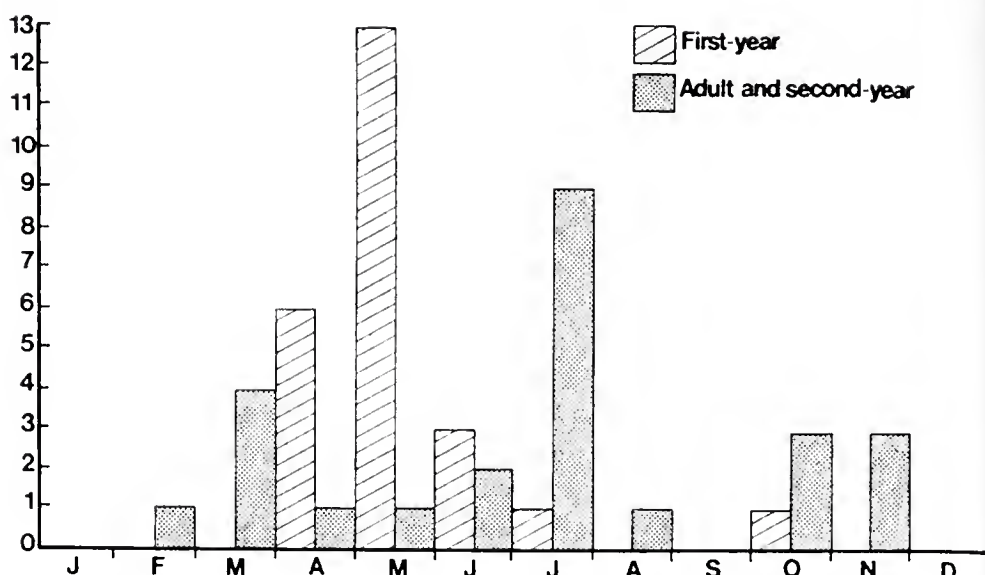


Fig. 1. Mediterranean Gulls *Larus melanocephalus* at Blackpill, West Glamorgan, during 1970-75. Arrival dates of first-year and older birds are shown by months

on through the autumn, though the August and September records are inadequate.

It is worth relating this pattern to those of the commoner gulls at Blackpill. Both adult and immature Herring Gulls *L. argentatus* are at a high level through the winter; then, in the spring, the adults leave, but a sizeable remnant of immatures and non-breeders stays all summer. There are generally no very marked influxes or passages. Black-headed Gulls *L. ridibundus* are different, with large numbers in winter, declining suddenly in early spring (e.g. in 1974, 1,000 in early March, 100 on 20th March and five on 25th March). There are few from late March until mid-June (often none at all) and no non-breeding flock remains. In mid and late June, there is an influx, consisting largely of adults in breeding plumage, with a few immatures and just one or two juveniles. For instance, in 1973, there were ten in April and May (except for a one-day influx of 60), 20 on 15th June, 390 (90% adults in breeding plumage) on 24th, 500-600 on 2nd July and 1,600 by 19th July; and in 1974, 65 on 14th June increased to 350 (virtually all adults) on 26th, 665 on 1st July and 1,050 by 18th July. Numbers usually reach about 5,000 in November.

Common Gulls have another, quite different pattern, as my counts for 1973/74 (apparently a typical winter) illustrate. From November to February, there were 2,200 or more (90% adults); in early March, 1,500 included few first- or second-year birds; by 25th March, adults numbered 1,400 and first-years 70; on 2nd April, adults had dropped to 800, but the number of first-years remained unchanged;

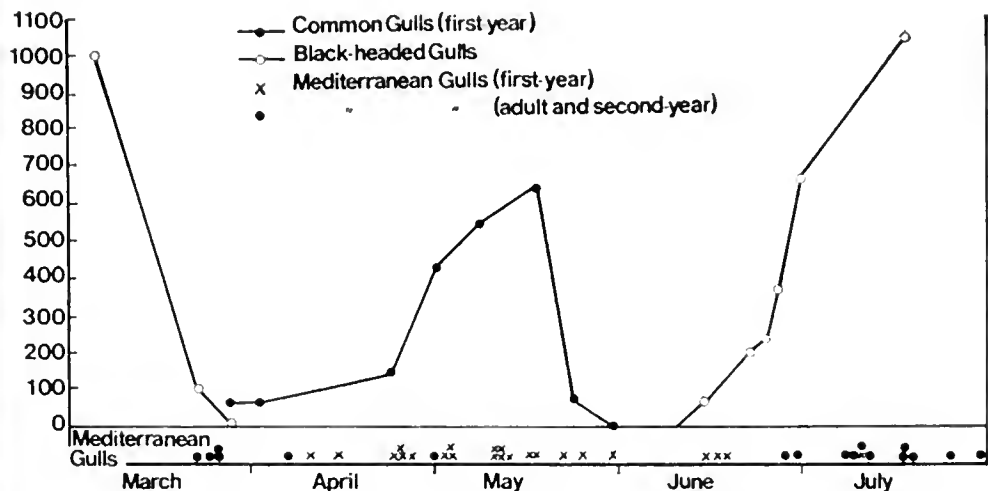


Fig. 2. Distribution of arrival dates of Mediterranean Gulls *Larus melanocephalus* at Blackpill, West Glamorgan, during March-July 1970-75, shown in relation to 1974 counts of Black-headed Gulls *L. ridibundus* and first-year Common Gulls *L. canus*. Note that first-year Mediterranean Gulls mostly coincided with the peak passage of first-year Common Gulls, whereas the majority of older Mediterranean Gulls appeared when Black-headed Gulls were departing in early spring or arriving in early autumn

on 22nd April, there were 145 adults and 145 first-years, but on 1st May only twelve adults remained, though first-years had increased to 430. Adults disappeared during May, but first-years totalled 550 on 7th, 645 on 16th and 65 on 21st, with a few thereafter. From 24th June, when 56 of mixed ages were present, the total slowly increased, without the sudden influx characteristic of Black-headed Gulls.

It seems, therefore, that adult Mediterranean Gulls appear briefly in spring, presumably on their way to breed (though we do not know where), at a time when Black-headed Gulls are rapidly moving away. Wintering Mediterranean Gulls also leave by early April. Then, in April and May, when Black-headed Gulls are almost entirely absent, there is an influx of first-year Mediterraneans, coinciding with the very marked spring peak of first-year Commons, while adult Common Gulls are all leaving. These Mediterraneans may move through, or remain among a scattering of other gulls (mostly Herrings), until the late June influx of Black-headed, at which time the fresh arrival of adult and second-year Mediterraneans begins (see fig. 2).

Both second-summer and adult Mediterranean Gulls therefore behave very much as do adult Black-headed Gulls, whereas first-year Mediterranean Gulls are more akin to first-year Common Gulls in their movements, as also they are in their appearance when in flight.

R. A. HUME

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Feeding association between gulls and Great Crested Grebes

Every summer, large numbers of Great Crested Grebes *Podiceps cristatus* gather to moult at Chew Valley Lake, Avon (see also *Brit. Birds*, 61: 556-558; 67: 419-420). Numbers build up from early July, until about 400 to 500 are present in August and September. After moulting, slightly reduced numbers remain generally until early in the new year, when most disperse. During July and August, a dense fishing flock develops, usually numbering 150 to 250 individuals. Initially, these are mostly from outside the area, with variable numbers of failed local breeders, but later the flock is augmented by successful local breeders and juveniles.

The grebes gather to feed on shoals of small fish, probably fry of Roach *Rutilus rutilus*. The flock wanders across the whole expanse of the lake and packs densely when a shoal is discovered. The feeding is then very intense, with up to half of the flock submerged at any one time. This activity often attracts up to 70 Black-headed Gulls *Larus ridibundus*, which are quick to spot a newly formed pack of grebes. They then settle among the pack and lunge at the small fish that are driven near the surface by the submerged grebes. As the grebes usually swallow their prey before resurfacing, there is little opportunity for any parasitism, and even the grebes that have to surface with larger fish are often ignored by the gulls, which seem intent on their own fishing. Small numbers of Herring Gulls *L. argentatus* and, especially, Lesser Black-backed Gulls *L. fuscus* sometimes join the Black-headed. The feeding association dies out by early autumn, when the grebes disperse to fish individually.

Although flocks of Black-headed Gulls sometimes prey on fish in the shallow water at the edge of the lake, they seem unable, without the grebes, to exploit successfully the shoals which occur in the deeper water.

K. E. VINICOMBE

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Dr K. E. L. Simmons comments: 'It is well known that seabirds often rely on predatory fish and cetaceans to "flush" their prey to the surface and above (e.g. *Brit. Birds*, 65: 475), but this is a most interesting variant.' EDS

Display of Lesser Spotted Woodpecker On 19th January 1975, at Esher, Surrey, a female Lesser Spotted Woodpecker *Dendrocopos minor* alighted on a nearly vertical branch of an ash *Fraxinus excelsior* and perched almost upright along it. She immediately spread her wings sideways and forwards until the still narrow points were level

with her head. For a few moments, she remained motionless in this position, while calling a soft 'keer-keer-keer'. No other woodpeckers were seen. On 23rd February, a Lesser Spotted Woodpecker called and then drummed from the same tree. A second individual arrived and, perched almost vertically on a branch, immediately assumed the same rigid stance with spread wings, calling as before. The first woodpecker then left and the second began hacking at the rotten branch. Misty visibility prevented me from determining the sexes of the birds.

This display seems to be a striking variation of the rigid posturings previously reported. *The Handbook* mentions the male's floating, moth-like display flight from tree to tree and adds that, between such flights, both sexes assume a peculiar, rigid, motionless posture close together on a branch. In such attitudes, which I have seen, although the woodpeckers perched along a branch with beaks straight out in line, their wings were folded closely along their sides, this position being held for a minute or more. They then flew to another spot and repeated the posturing. E. V. Southam (*Brit. Birds*, 38: 55) described how both sexes took up a sustained position with quivering, half-open wings and spread tail, and head pushed forward, showing the barred back and outer tail feathers, while calling a loud, hissing churr. R. A. Richardson (*Brit. Birds* 41: 311) observed a male Lesser Spotted Woodpecker that, after a sailing, butterfly-like flight on motionless wings, alighted but kept his wings fully spread and slightly raised.

GEOFFREY BEVEN

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Rooks taking food from dustbins Further to the note by N. L. Richards on a Rook *Corvus frugilegus* taking food from a dustbin at St Mawgan, Cornwall, in November 1969 (*Brit. Birds*, 62: 497-498), I found small groups of up to five Rooks at Saltford, Avon, taking food from wire mesh bins during the winter of 1969/70. Saltford is on the A4 road and the dustbins were in small shopping precincts nearby. The Rooks visited the bins during weekends, or whenever the bins were full, especially very early on Sunday mornings. They were seen pulling at exposed matter and, while some individuals obtained edible items in this way, others worked over what had fallen to the ground. Sometimes, the Rooks penetrated deep into the wells of the bins and I noted that they obtained scraps of bread and discarded potato chips, but, as I could not approach closely without disturbing the birds, it was not possible to identify many food items.

BERNARD KING

Gull Cry, 9 Park Road, Newlyn, Penzance, Cornwall

Short-toed Treecreeper in Kent: a species new to Britain and Ireland The question of identification of treecreepers *Certhia spp* has recently been reviewed by C. J. Mead and D. I. M. Wallace (*Brit. Birds*, 69: 117-131). In their introduction, they mentioned the first accepted British record of Short-toed Treecreeper *C. brachydactyla*, trapped at Dungeness, Kent, on 27th September 1969 and re-trapped there on 30th September. The purpose of this note is to place the details of this occurrence on record.

Between 1952 (the year that the bird observatory began its operations there) and 1970, only four treecreepers were recorded (all of them trapped) at Dungeness. The first, on 10th October 1957, was examined in the hand by H. E. Axell, who recorded on the description card that the bird was 'Too grey for British. Possibly *C. f. familiaris* (or *macroductyla*).' It is possible that this individual may have been *brachydactyla*. Two others, both examined by me, on 8th October 1969 and 17th October 1970, were identified as Treecreepers *C. familiaris*.

The bird subsequently identified as the first British Short-toed Treecreeper was trapped in a mist-net at dusk on 27th September 1969. After examination, it was roosted overnight and released on the morning of 28th September, weighing 7.6 g (08.00 hours). Two days later, on 30th September, it was re-trapped, weighing 8.1 g (09.00 hours). The following details were recorded. Wing 59 mm, bill 17 mm, tarsus 17 mm, hindclaw 6.5 mm. Wing formula: 1st primary 9 mm longer than primary coverts, 4th and 5th primaries equal and longest, 3rd shorter by 2 mm, 2nd by 9 mm, 6th by 1.5 mm, 7th by 5 mm, 8th by 8 mm, 9th by 9.5 mm and 10th by 10.5 mm.

Separation of the two treecreepers in the hand is dependent upon hindclaw and bill measurements; although Dr J. M. Harrison (*Ibis*, 77: 437-438) recorded that the largest alula feather has a complete pale margin in *brachydactyla*, Mead and Wallace showed that 17% of *familiaris* could be wrongly assigned on this character alone. The description card of the trapped bird does not mention this feather, but an examination of a colour transparency taken at the time shows a thin, but complete, pale margin.

L. Svensson (1965, *Identification Guide to European Passerines*) separated the two species with the formula: bill \times 0.456, greater than hindclaw = *brachydactyla*, less than hindclaw = *familiaris*; but Mead and Wallace showed this not to be completely sound and produced an improved formula that was 95% efficient: 0.14 \times bill + 5.6, greater than hindclaw = *brachydactyla*, less than hindclaw = *familiaris*.

On all of these criteria, the treecreeper first trapped at Dungeness on 27th September 1969 was clearly *brachydactyla*, while the other

three Dungeness examples were either *familiaris* or fell in the area of overlap between the two species, so that their identities will probably never be conclusively established.

R. E. SCOTT

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Song of female Blackbird This note is prompted by Margaret K. Jones's note on the song of a female Blackbird *Turdus merula* and Dr D. W. Snow's comments (*Brit. Birds*, 62: 80), and Elspeth Bartlett's note on the song of a female Dunnock *Prunella modularis* (*Brit. Birds*, 63: 179-180). On 13th July 1970, in my garden at Barnwell, Northamptonshire, a male Blackbird flew on to the roof of some stables and started to sing. His mate, feeding nearby, then joined him and also started to sing, but in a very subdued—though typical—manner, continuing after the male had stopped and flown away.

Later that afternoon, the female flew in from a nearby orchard, landed on a wall, and started to disgorge cherry stones and undigested cherries. Twice while doing this, she uttered a few notes of typical song before returning to feed.

The birds were accustomed to my presence, especially near their nest, and there were no apparent signs of agitation and no conflict with the other resident pair of Blackbirds, which were feeding in a nearby field (both pairs had reared young, which had since left the garden).

JAMES W. W. METCALFE

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Reviews

A Guide to Birds of the Coast. By C. A. Gibson-Hill, revised by Bruce and Robert Campbell and Robin Prytherch. Constable, London, 1976. 288 pages; 25 black-and-white photographs; numerous line drawings and distribution maps. £3.50.

The original book, *Birds of the Coast*, published in 1949, was described by the author as 'a short introduction to the coastal birds of the British Isles in an easily portable form'. It was just that and, with its distribution maps and plentiful line drawings, which included birds in flight and compared similar or easily confused species, it was a forerunner of many of the field guides with which we are now so familiar. Although many modern birdwatchers may never have seen a copy, or even heard of the book, it stands as a minor classic of its kind, published in an era when practical bird books were few and far between.

A revised version has now appeared, converting the sequence to the Wetmore order, updating and adding to the original text and bringing in new distribution maps. The photographs differ somewhat from those of the 1949 edition, but are still all from the series taken by Carl Gibson-Hill 30 years ago and are mostly extremely good. Unfortunately, the author's original line drawings, with their lively and individual style, were lost after his death in 1963, so that the revised edition contains only a few of these, but a great many new ones by Robin Prytherch.

Most of the old text remains, and the revisions have been fitted in very successfully. The new drawings capture the spirit of the originals, so that the end result is an attractive and readable little book. I am, however, not personally convinced of the wisdom of revising bird books long out of print, especially when the original seems to stand on its own and to represent a certain stage in the evolution of ornithological literature. I am forced to wonder, too, who will buy this book at a time when there are so many full-coloured field guides about? I doubt if many active birdwatchers will feel the need to have a copy, and it is not quite what I would recommend to holidaymakers or casual observers.

MICHAEL J. EVERETT

A Guide to Bird-watching in Denmark. By J. Sanders and K. Berg. A B Grafisk Formgivning, 1976. 63 pages; 39 line-drawings. £1.70.

This short book gives useful information for the English-speaking birdwatcher visiting Denmark, including how to travel, where to stay, the best available maps and costs. It covers, however, only western Jutland and north Zealand, and there are many places well worth visiting elsewhere in the country. Unfortunately, its value is reduced further because some of the information on the birds is inaccurate and incomplete; it appears to be based on enquiries made by the authors in the 1960s, without any attempt having been made to consult competent Danish ornithologists for the more recent developments. As the book seems designed largely for British ornithologists, it is strange that Romo and Fano are not mentioned as the two most important Danish breeding localities for Kentish Plover; and a list of the villages where White Storks are still nesting would surely have been of interest? Data on the Black Woodpecker in north Zealand are inadequate and not entirely correct. Yet, although some of the information must be treated with reserve, it is, perhaps, the best modern work available to English-speaking birdwatchers, since others, though they cover larger areas in Denmark, deal with fewer localities. TOMMY DYBBRO

Letters

Migration in the doldrums D. I. M. Wallace expressed an atavistic 'Viewpoint' (*Brit. Birds*, 68: 202-203) that it was time for 'a resumption of migration studies related to conservation', and suggested setting up a working party to promote it. This has, of course, been an interest of the International Council for Bird Preservation since its foundation, while we already also have the British Trust for Ornithology's Ringing and Migration Committee and the Bird Observatories Council covering other aspects of the study of migration, so might it not be better to concentrate all these divided responsibilities under one committee instead of setting up a fourth?

But, surely, first we need to find some clear objectives for further development? All the great enquiries were mounted with well-defined aims, yet now most possible approaches have already been investigated. In the distant past, we had phenology, recording the annual return of the patron of all migration-watchers, the Cuckoo *Cuculus canorus*. In the 1880's, the British Association for the Advancement of Science mounted a major enquiry into migration at the coastal lights, and in the 1900's the British Ornithologists' Club set up another, into migration inland, during which the Alexanders revealed that the birds take up territories. Between the wars, most people were happily engaged in developing bird-ringing, though a few pioneers paved the way for the great outburst of activity at bird observatories, at sewage farms and on weather ships, first watching visible migration, then birds seen with radar, ringing Sand Martins *Riparia riparia* and, finally, looking for inland migration once again. Eventually, all these enquiries achieved their more practical aims and were buried under a progressive accumulation of results, yielding diminishing returns, so that people took up other things, such as counting seabirds and making maps. If we wish to persuade them to study migration again, and raise grants to help in these hard times, we need to think of something new and useful for them to do.

Personally, I cannot think of any very convincing new objectives. The most promising—further ringing analyses—has already been receiving attention for some time, even if you are not satisfied with the progress made (*Brit. Birds*, 68: 53-56), which can be regarded as an indication of the increasing difficulty of more complicated analyses. Other people have already carried out expeditions to areas, such as Iberia and West Africa, where the ringing results suggest that there are conservation problems. These, also, are often more easily said than done in the present economic situation. I cannot think of much more that we might do now, except attempt

to follow the movements of marked birds and populations more closely. There are limits to the amount of conspicuous marking that the public will tolerate, but, if this sensitive subject is approached cautiously, there is a growing fund of experience, with selective trapping, dyeing, tagging, use of large rings readable at a distance, and radio direction-finding, on which we might build. It should also be possible to carry out further developments of census techniques in order to follow the movements of bird populations outside the breeding season, in the way already possible with wild-fowl and waders.

Whatever is done, surely the need is for a better organisation of existing institutions, rather than the establishment of additional ones?

W. R. P. BOURNE

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AB9 2TN

Feeding habits of certain seabirds We feel that the letter by Dr W. R. P. Bourne (*Brit. Birds*, 69: 188-189) attempting to clarify information on plunge-diving, deserves comment.

(1) We agree with him that the species—Shag *Phalacrocorax aristotelis*, Manx Shearwater *Puffinus puffinus* and Razorbill *Alca torda*—observed by BK mass-feeding over dense shoals of fish were often not plunge-diving, but, in their attempts to reach more favourable positions close to their prey, ‘crash-landing’ from flight and then surface-diving immediately in their normal way. Indeed, in many instances, they surface-fed after alighting without diving at all.

(2) Not infrequently, however, and especially in the case of the Shags, the birds did not pause on the surface, but submerged immediately from flight. This behaviour was not of the accomplished type of aerial diving practised, for example, by Gannets *Sula bassana* (which enter the water head first), but of a clumsy kind that one would expect from otherwise habitually surface-diving species; nevertheless, the term ‘plunge-diving’ (used broadly for all types of aerial diving) seems to us acceptable for such behaviour. Further, in the case of the Manx Shearwater, we know from the observations of W. E. Jones (*Brit. Birds*, 68: 119-120), to which Dr Bourne did not refer, that typical plunge-diving may at times be performed by many birds of the same feeding congregation, while others are surface-diving and surface-feeding. Versatility is evidently a key factor in the feeding biology of many successful seabird species.

(3) We also agree with Dr Bourne that the behaviour of the Puffin *Fratercula arctica*, described in A. C. Bent’s *Life Histories of North American Diving Birds* (1919), is better classified as ‘porpoising’, rather than plunge-diving. The frequency and significance of por-

poising among auks (Alcidae) still seems uncertain, but it is generally agreed that in the convergent penguins (Spheniscidae) such behaviour enables birds moving rapidly under water to breathe with minimum time on the surface, this being of particular importance when they are feeding among shoals of fish near the surface. Porpoising may also help to replenish the air supply trapped between the feathers, thus maintaining the insulating efficiency of the plumage.

(4) In the same volume of his *Life Histories*, however, Bent recorded that the Tufted Puffin *Lunda cirrhata*, presumably while feeding, 'often dives directly out of the air into the water' as well as surface-diving 'as soon as it alights'.

(5) We believe that one reason for misunderstandings of seabird feeding methods is the lack, even now, of a really satisfactory and comprehensive classification. The terminology of Dr N. P. and Mrs M. J. Ashmole (*Bull. Peabody Mus. Nat. Hist.*, 24: 1-131), and the adaptation of it used by KELS (*Brit. Birds*, 65: 475-479), proved unsatisfactory, while even the later attempt by Dr Ashmole (*Avian Biology*, 1: 223-286) had its shortcomings and has not yet been widely used. KELS has, therefore, been devising an improved classification based on this earlier work. A version of the new terminology is used in the forthcoming *The Birds of the Western Palearctic*, and will eventually be published in some form elsewhere.

(6) Finally, we feel constrained to point out that plunge-diving seabirds by no means always aim their attacks on a pre-selected prey-fish, nor are some incapable of pursuing their prey under water, at least to some extent, in the manner of surface-diving species. We do not believe, either, that Dr Bourne meant to imply that any true seabird—flight-feeder, plunge-diver, surface-feeder, or surface-diver—ever uses its feet to secure food.

BERNARD KING and K. E. L. SIMMONS

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Manx Shearwaters plunge-diving While acknowledging Dr W. R. P. Bourne's experience in the realm of seabird activity, I suggest that his letter (*Brit. Birds*, 69: 188-189) indicates that he has not yet seen Manx Shearwaters *Puffinus puffinus* feeding in exactly the same conditions as those described by Bernard King (*Brit. Birds*, 67: 77) and myself (*Brit. Birds*, 68: 119-120).

When Manx Shearwaters are in loose rafts over a fairly open fish-shoal, or when they are widespread and feeding on more scattered prey, they usually obtain their food either near the surface while swimming or, more usually, during a series of shallow dives. If the prey species is moving horizontally at any speed, a shearwater will, however, usually emerge from a dive with its wings

beating and then either take to the air at once or flap and glide with its feet pattering along the surface until further food is sighted; it will then splash-land breast-first and dive again almost without pause. Such a manoeuvre requires adequate sea-room, and it is precisely this condition that is lacking during incidents such as those described earlier. The rafts that I watched were so densely crowded that there was no room for a bird to land anywhere near the centres of them before diving, and the shearwaters circling and wheeling overhead eventually descended at such an angle that it seemed physically impossible for them to break the surface other than head-first.

I am somewhat puzzled by Dr Bourne's comment expressing doubt concerning the birds' ability 'to hit a fish with an aimed plunge'. Surely, their only need is to get below the surface near the shoal by whatever means they can, so that fish can be pursued and caught in the usual manner?

W. E. JONES

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Wader photographs I was delighted to see the superb series of wader photographs by J. B. and S. Bottomley (*Brit. Birds*, 69: 155, plates 13-16), but was somewhat disappointed that, in the accompanying captions and text, the opportunity was missed to point out the juvenile plumage characteristics so clearly shown by most of the birds. Since many of these diagnostic features are visible in the field, at least in autumn and early winter, it is worth mentioning the more obvious ones. For instance, the scaly pattern on the back of the Knot *Calidris canutus* (plate 15a), formed by the dark brown subterminal bands and buffish-white fringes to the back feathers and wing coverts, is not present in adult Knots at any time of the year. In September, when this photograph was taken, adults would still show some traces of the dark brown summer plumage on the back (heavily abraded), but would also have already obtained many of their pale grey winter feathers, which, though paling slightly towards the tip, lack the contrasting markings of the juvenile feathers. Whilst the juveniles change most of their back feathers by November, to the adult-type winter plumage, the juvenile wing coverts are retained throughout the first year, enabling identification of first-year birds at close range (or in the hand).

Immature Grey Plovers *Pluvialis squatarola* (plate 13b) can also be identified in the field in their first year, retaining much of their characteristic spotted appearance throughout their first winter. In winter plumage, the back feathers and wing coverts of the adult are grey, paling uniformly towards the tip, but not showing any semblance of this spotted appearance. It is worth mentioning that

some of the spots on the immature plumage are of a yellowish-golden hue—particularly on the scapulars and lower back—and this has been the cause of some confusion (with Golden Plovers *P. apricaria*) to inexperienced observers (particularly in the hand, where size and other field characteristics, 'jizz' and habitat cannot be judged). The juvenile Sanderling *Calidris alba* (plate 14a) also has a characteristic spotted appearance on the back, scapulars and wing coverts—the spots being white or slightly buffish-yellow, with narrow black terminal bands (not visible in the field and soon abraded off). Whilst the back feathers are changed by October, to the uniform silvery-grey of the adult winter plumage, the juvenile wing coverts are retained. When the plumage becomes abraded in late winter, the closed wing of the juvenile looks brownish in the field, in contrast to the greyer appearance of the adult.

I hope that these comments may encourage observers to look more closely at waders in the field, particularly in autumn, when age characteristics are most apparent. This would be particularly interesting on inland waders and on rarities—my own observations suggest that the majority of these are juveniles. Field guides also might perhaps pay greater attention to the more significant differences in plumage of the different age classes (for some time, the juvenile plumage of the Ruff *Philomachus pugnax* was featured in illustrations and labelled as 'Ruff, autumn'—presumably because almost all of the Ruffs seen in Britain and Ireland on autumn passage are juveniles).

C. D. T. MINTON

Elm Croft, 65 St John's Hill, Shenstone, Lichfield, Staffordshire

A question of priorities I find it significant that the two critiques that you published of my 'Viewpoint' (*Brit. Birds*, 69: 16-19) were concerned with its philosophic starting point (Barrie Pearson) and matters of fact (Robert Adams) (*Brit. Birds*, 69: 226-228). Neither took issue with the main point of the article, that money spent on conservation at home would be better spent abroad where species (not populations or subspecies) are faced with imminent extinction.

I am sorry that my philosophical ramblings were not clear to Mr Pearson, for certainly he has misunderstood or missed the point of the argument. To ask 'should we conserve birds?' is to ask an ethical question. It is my point that without the healthy ecosystem, of which birds form an integral part, it would be impossible to ask such a question. Thus, the existence of birds is presupposed in asking the question. That is neither self-evident, nor materialistic or aesthetic. It is the only acceptable answer (that I know of) that is not based on simple value judgements, which, as Mr Pearson so rightly states, are outside the province of philosophers. He goes on

to raise the problems of peripheral populations and their scientific interest while totally ignoring the plight of the Cheetah *Acinonyx jubata*, the Tiger *Panthera tigris* and the Indian Rhinoceros *Rhinoceros unicornis*, not to mention the plethora of endangered bird species that cling to toe-holds on this planet. With the present rate of wildlife decline, we may, on Mr Pearson's premise, know an awful lot about how species originate by the time they disappear.

My research, says Mr Adams, was inadequate. Yet my article explicitly stated that WWF money is divided into three components—the national, the international and a third rather grey area that may be spent on either. It is my point that the WWF—*World Wildlife Fund*—was created to channel money into the less fortunate countries. His point, about donors needing to be assured that some part (in practice half or more) of their donations is spent in Britain, simply highlights my case. In my opinion, the WWF is not doing what it set out to do. With its vast turnover, the WWF gives the impression that the wildlife of the world is being well cared for. Instead, it is the wildfowl of Britain that seem to benefit most.

May I suggest that, if readers have money to give to wildlife conservation, they consider the '100% Fund' of the Fauna Preservation Society? At least they would then be sure that all of their money was being spent on a global scale.

JOHN GOODERS

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This correspondence is now closed. EDS

Bird Photograph of the Year

Readers are reminded that the closing date for receipt of entries for this competition (black-and-white prints or colour transparencies) is 5th January 1977. Interest and originality, as well as technical excellence, will be taken into account in deciding the winning entry. The prize will be a cheque for £100. For full details of the rules, see page 421 in the November issue. The judging panel will be M. D. England, I. J. Ferguson-Lees, Eric Hosking and Dr J. T. R. Sharrock. Eds

Request for information

Birds of St Kilda Dr M. P. Harris is updating the bird list of St Kilda published by Kenneth Williamson and J. Morton Boyd in their book *St Kilda Summer* (1960). He would like to receive any recent bird records that have not already been submitted to Dr I. D. Pennie (bird recorder for St Kilda); these should be sent to **Dr M. P. Harris, Institute of Terrestrial Ecology, Banchory, Kincardineshire AB3 4BY.**

Request for assistance

Atlas fieldwork in Finland, Italy and Spain Observers willing to help in completing breeding bird atlas coverage in Finland, Italy or Spain, during visits in April-July 1977, are invited to contact the national organisers of the atlas projects in those countries. Advice on maps, letters of introduction and, where necessary, permission to visit some private areas can be provided for serious fieldworkers willing to help in remote squares. Please contact: **FINLAND** Dr Kalevi Hyytiä, Joupinmaki 3 A 19, 02760 ESPOO 76; **ITALY** Dr Sergio Frugis, Director, Centro Italiano Studi Ornithologica, c/o Istituto di Zoologia, Università di Parma; **SPAIN** Dr Francisco Purroy, Estacion Central de Ecologia (ICOWA), KM 7 Carretera La Coruna, Madrid 35.

News and comment *Peter Conder*

Skokholm Bird Observatory to close The sad news has reached me that Skokholm Bird Observatory, Dyfed, is to close. The observatory was the first to be established in Britain, in 1937, by R. M. Lockley, whose work on the Manx Shearwater was one of the earliest seabird life history studies to be made. It was on Skokholm that Ronald Lockley built the first Heligoland bird trap in this country. From that moment, until the war closed the observatory, many thousands of birds were ringed annually. Up to the war, the observatory was managed privately by Mr Lockley, but in 1948 the West Wales Field Society took over the lease and granted a licence to the Field Studies Council to manage it. When the lease came to be renewed in 1969, the owner would allow the West Wales Naturalists' Trust, to which the Field Society had changed its name, to renew it only on the condition that they did not in any way sublet the island.

Now, in 1976, when the lease has once more come up for renewal, the owner, who was for several years a member of the British Ornithologists' Union, has granted the WWNT only a further three-year lease, and then only on the condition that all trapping and ringing ceases. The WWNT was told that, as ringing had been carried out on the island for nearly 50 years, it should now have learnt all there is to know! Yet the latest annual report shows that Manx Shearwaters ringed in 1946 and in succeeding years are still alive and returning to the island, so we still do not know the age to which the island's commonest birds can live.

Although Skokholm's long history of research, based on individually recognisable birds, is to come to an end, the WWNT will still manage the island and welcome visitors who wish to stay for a minimum of a week at the house. The WWNT will be arranging a number of courses for beginners and those interested in seabirds. Further details may be obtained from David Saunders, hon. general secretary of the West Wales Naturalists' Trust, 20a High Street, Haverfordwest, Dyfed. The latest report, covering both Skokholm and Skomer in 1975, may be obtained from him, at a price of 35p (including postage).

Ringling migrants on Great Saltee John Rochford of the Irish Wildbird Conservancy and two companions have made two visits to the island of Great Saltee, situated off the extreme south-east corner of Ireland, and are proposing to return there in future migration seasons. The ringing totals resulting from these trips have been impressive reminders of the value of Great Saltee in the chain of migrant passerine ringing stations. The bird observatory, established there in 1950, ceased regular operations in spring 1963.

Endangered species of wild fauna and flora Trade in animal furs and skins continues to be substantial, according to statistics contained in the 'Report in the Implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora in the United Kingdom 1 January-31 July 1976'. Indeed, ornithologists who look at the figures of birds of prey imported during the first seven months of the year might well be shocked, since the totals are already as high as those for the whole of 1975. We have to be grateful that the United Kingdom's controls on birds of prey and owls extend beyond those of the convention, in requiring a licence before the importation of any bird of prey. In spite of these additional controls, however, the licensing authority apparently has no power to limit the number of licences it issues or to impose quotas. This appears to be a weakness of the present system. The controls are not intended to interfere with legitimate trade. One advantage of such a system is that the United Kingdom is in a position to monitor closely all relevant trade. This in turn should serve to highlight significant fluctuations in the trade of any particular species and give an early warning if it appears that stocks are being depleted through over-exploita-

tion. The report is available from Wildlife Conservation Section, Department of the Environment, 17/19 Rochester Row, London SW1.

NCC to buy Cader Idris The Nature Conservancy Council has reached a satisfactory arrangement to purchase 387 hectares of land at Cader Idris, Gwynedd. The interest of the mountain lies mainly in its outstanding geological and botanical features, including many arctic-alpine plants. The area to be purchased includes the glacial lake of Llyn Cau, the summit of the mountain ridge known as Pen-y-Gadair (893 m), 8 hectares of mixed oak and ash woodland, and some adjacent areas necessary for managing the reserve effectively.

More bird reserves The Royal Society for the Protection of Birds has recently announced the acquisition of the freehold of Fore Wood, Sussex, with some of the £610,000 so far raised in its 'Save a Bird' appeal. Fore Wood, near Battle, is a 55-hectare wood, with oak standards and chestnut and hornbeam coppice. The coppicing has been much neglected in recent years and provides opportunities for management.

The Scottish Wildlife Trust has purchased a large part of the Montrose Basin in Angus, an estuary of importance for its wading birds. The new reserve consists of over 700 hectares of foreshore and saltmarsh, and its acquisition will be some compensation for the loss of part of the Cromarty Firth to oil developments. Both purchases were helped by grants from the World Wildlife Fund.

Gibraltar I have just been sent the first bulletin of the Gibraltar Ornithological Group. Ernest Garcia tells me that he expects that duplicated bulletins will be appearing at six-monthly intervals and will be summarising ornithological observations at Gibraltar, which boasts a growing number of birdwatchers. The present bulletin includes group news, then, most usefully, a list of recent ornithological publications recording observations at or near Gibraltar, and finally a systematic list of birds seen in the first six months of 1976, which makes fascinating reading. This issue of the bulletin can be obtained from E. F. J. Garcia, 50 Governors Street, Gibraltar; price 40p, postage paid.

Requests for information In *BTO News*, birdwatchers are asked to pay particular attention to owl pellets and check their contents for rings. Chris Mead says that owl pellets will contain rings often still on the leg bones of any ringed bird that may have been eaten. Such records not only provide a useful ringing recovery, but help us to learn more about predators' diets. Pellet searches tend to be most productive between November and April, when the summer's growth of vegetation has died away.

Andrew St Joseph of the Wildlife Trust at Slimbridge, Gloucester, tells me that few of the birdwatchers who look at Brent Geese flocks between the Wash and the Channel Islands notice rings or make any attempt to read the numbers, which can be read at a distance of 100 m with a 40× telescope. His work is a remnant of the research packet given to naturalists—dare I say as a sop—by the Heath government when they chose Foulness as the site for London's third airport. Andrew St Joseph's research still has validity (but not much funding, apparently). The main point of this note, however, is to ask birdwatchers to pay particular attention to the legs of the Brent Geese they see this winter.

Whales, dolphins and porpoises Ornithologists often see cetaceans when engaged in seawatching. The Mammal Society has just published an excellent booklet, entitled *Guide to Identification of Cetaceans in British Waters*, by P. G. H. Evans, with drawings by C. M. Crawford. Birdwatchers are in a position to make significant contributions to the knowledge of cetacean distribution round our coasts.

Queries and records are welcomed by P. G. H. Evans, Cetacean Group, c/o Zoology Department, University of Aberdeen, Tillydrone Avenue, Aberdeen, AB9 2TN, from whom copies of the booklet and recording forms may be obtained.

Seventy-fifth Anniversary of Netherlands Ornithologists' Union At a conference to mark their 75th anniversary, the Netherlands Ornithologists' Union elected Professor Niko Tinbergen and Professor Karel Voous as Honorary Members and Professor Urs Glutz von Blotzheim and Stanley Cramp as Corresponding Members.

Honours to ornithologists In addition to the awards recently mentioned under this heading by Peter Conder (pages 459-460), we should note that he himself has also deservedly been honoured. At the annual general meeting of the Royal Society for the Protection of Birds, held on 29th September 1976, Peter Conder was awarded the society's Gold Medal for services to bird protection. (Contributed by J. T. R. Sharrock.)

Birds new to science 'News and comment' for October 1974 (*Brit. Birds*, 67: 444-447) included an item on bird species new to science discovered in recent years. Only three of these were from the Palearctic region: a gull *Larus relictus* from Kazakhstan, a nightjar *Caprimulgus centralasicus* from north-west China and a grasshopper warbler *Locustella amnicola* from east Siberia. Now a fourth can be added, and from an area much nearer home. In the current issue of *Alauda* (44: 351-352), Jacques Vielliard has named and described a new nuthatch, *Sitta ledanti*, discovered last July on the Djebel Babor, northern Algeria; this lies in the Petite Kabylie Mountains of Constantine province, which are between the Gulf of Bougie and the town of Sétif. The Kabylie Nuthatch, as it has been dubbed, rather resembles Krüper's Nuthatch *S. krueperi* of Turkey and the Caucasus, but has the underparts uniformly washed with beige, and also has a distinctive song. Further, juveniles have the black crown of adult plumage, a feature lacking in juveniles of *S. krueperi* and its other upland relative, the Corsican Nuthatch *S. whiteheadi*. This newly discovered nuthatch must be very rare and local to have evaded detection for so long in a comparatively well-worked country. Monsieur Vielliard considers it a relict population that may not exceed a dozen pairs, and, if he is right, this must be one of the rarest passerines in the world. Fortunately, access to the Djebel Babor is difficult and strictly regulated, so that appropriate conservation measures can be imposed. (Contributed by Robert Hudson.)

Tailpiece Extract from *Habitat Digest* no. 7: 'There has been some concern expressed at the overuse of nature reserves for school field studies . . .'

Extracts from the *Bedfordshire Natural History Society Newsletter*, students' page: 'Visit to Maulden Wood, August 1976. It was a really baking afternoon, but we eventually persuaded ourselves to take off our bikinis and spend an afternoon at Maulden. We first decided to look for butterflies . . .'. 'Open day at Maulden Wood, September 5th 1976. Thousands flocked to see the spectacle on this joyous occasion, the atmosphere comparable to a rolling stones concert (or nearly). The Police were in evidence to control the marauding naturalists doing their thing here and there and everywhere . . .'

Opinions expressed in this feature are not necessarily those of the editors of British Birds

Spring summary *D. A. Christie*

We received little information on sea-passage from coastal stations, but the following movements may be of interest. At Portland a total of 3,194 **Manx Shearwaters** *Puffinus puffinus* passed between 2nd and 12th May. Figures for **Common Scoters** *Melanitta nigra* came only from Dungeness, where eastward passage reached a peak of 4,029 on 3rd May. An impressive movement of skuas was recorded. At Dungeness, 161 **Pomarine Skuas** *Stercorarius pomarinus* flew east between 19th April and 18th May, with peaks of 48 on 6th May, 63 on 8th and 21 on 15th; and at Beachy Head 157 were noted between 19th April and 15th May, peaks being 28 on 6th May, 75 on 7th and 25 on 15th; at Balranald, North Uist (Western Isles), 138 moved north between 10th and 15th May, with maxima of 56 on 10th and 36 on 12th. Between mid-April and mid-May 112 **Arctic Skuas** *S. parasiticus* moved east at Dungeness, including 35 on 2nd May. A noteworthy inland record of **Kittiwakes** *Rissa tridactyla* came from the Elan Valley reservoirs (Powys), 14 individuals on 14th May.

WADERS

A total of about 19 **Kentish Plovers** *Charadrius alexandrinus* was recorded from 17th April, most from the east coast, but including as many as seven inland. Few reports were received of **Dotterels** *Eudromias morinellus*, the maximum being 16 at Simonsbath, Exmoor (Devon), in May. Early **Wood Sandpipers** *Tringa glareola* at Chew Valley Lake on 1st April and Cranmere (Salop) on 2nd were followed by six more in April, 19 in May and just one in early June; no more than two were seen together. About 34 **Little Stints** *Calidris minuta* were noted, of which eleven were at inland sites, including up to three at Draycote in early June, and the maximum was five at Tetney Haven (Lincolnshire) on 10th June. Only eleven or so **Temminck's Stints** *C. temminckii* were noted, a poor showing after recent years; an early one was at Par marsh (Cornwall) on 24th April. A **Curlew Sandpiper** *C. ferruginea* appeared at Sandwich Bay on 22nd March, followed by one at Bough Beech Reservoir (Kent) on 19th April, but there were only three more in May, two of them inland. **Avocets** *Recurvirostra avosetta* have been more conspicuous on passage in recent years and 1976 was no exception; they turned up at ten places and were noted on sea-watches; the most interesting records concerned inland sightings, no fewer than 35 at seven sites including the amazing number of 21 at Eye Brook Reservoir on 23rd May.

DEPARTING WINTER VISITORS

A **Whooper Swan** *Cygnus cygnus* remained at Holy Island (Northumberland) until 16th May, while the last **Bewick's** *C. bewickii* was at Grindon Lough (also Northumberland) on 13th.

There was a large flock of 200 **Fieldfares** *Turdus pilaris* at Middleton-in-Teesdale (Cleveland) on 3rd May and five others were still present in several places in the second half of the month; in June singles were seen in the Trent Valley and, surprisingly, in the Greater London area (two). A fall of 1,000 **Redwings** *T. iliacus* at Dungeness on 25th March indicated the beginning of return passage on the east coast, while three days earlier 1,600 arrived on Lundy in the west; 18 were reported in England in May, many from inland localities. A total of twelve **Bramblings** *Fringilla montifringilla* was reported in May, up to 9th.

ARRIVALS OF SOME MIGRANTS AND SUMMER VISITORS

For the sake of brevity, the following details do not include first dates unless they were particularly noteworthy and are limited to those species for which there is significant information. **Hobby** *Falco subbuteo* No early records, but a sizeable

influx in May and June, with numerous reports from the Midlands and north-east England. **Little Ringed Plover** *Charadrius dubius* Present in Kent from 20th March. A very early bird at Sandbach (Cheshire) on 13th March, and one at Thrapston gravel pits (Northamptonshire) on 21st was also earlier than usual. **Whimbrel** *Numenius phaeopus* Extremely early report of 24 flying north-east at Cliffe (Kent) on 24th February. Few in March but a distinct arrival in last ten days of April. Maximum at Steart (Avon) roost, 930 on 30th April. **Greenshank** *Tringa nebularia* Heavy arrival during second half of April. **Stone Curlew** *Burhinus oedipnemos* One found dead near Wadenhoe (Northamptonshire) on 9th April was the first in the county since 1963. A pair was found in Leicestershire (outside the normal breeding range) early in April. **Black Tern** *Chlidonias niger* Very few. Maximum at Dungeness only 68 on 6th May. Inland 50 or more at Foxcote (Berkshire) on 23rd May. **Common or Arctic Tern** *Sterna hirundo/paradisaea* 1,000 east at Dungeness on both 24th and 28th April. **Little Tern** *S. albigrons* Maximum at Dungeness 209 east on 6th May. **Sandwich Tern** *S. sandvicensis* Fewer than usual in March. Maxima at Dungeness 330 east on 10th April and 510 on 1st May. **Turtle Dove** *Streptopelia turtur* Very early bird reported at Chelsfield (Kent) on 27th February. At Sheringham (Norfolk) 253 moved west on 22nd May. **Cuckoo** *Cuculus canorus* Distinct influx from second week of April. **Nightjar** *Caprimulgus europaeus* An exceptionally early bird reported at Bough Beech Reservoir on 4th April. **Swift** *Apus apus* Three at Fetlar (Shetland) on 23rd April were probably the earliest ever recorded in Shetland; otherwise a late arrival. **Swallow** *Hirundo rustica* Late, but a definite influx in the last few days of April. **House Martin** *Delichon urbica* Again very late and numbers apparently reduced. Influxes mid and late April. **Sand Martin** *Riparia riparia* Very late. Influxes early April, 19th/20th and late April. **Wheatear** *Oenanthe oenanthe* At Breck Farm (Derbyshire), two to three from the early date of 20th February, and three reported at nearby Staveley on 24th. Marked arrivals 21st/22nd March and from 26th. On Fair Isle, influxes of 20 on 10th April, 55 or more on 20th and 80 on 21st; large fall on east coast during 7th-9th May, with 170 in Holywell area and 120 on Holy Island and many other counts of up to 100. **Whinchat** *Saxicola rubetra* Remarkable series of early records in South Yorkshire: one in Sheffield on 23rd February, one at Agden on 24th (two on 26th) and one at Ulley on 7th March. **Redstart** *Phoenicurus phoenicurus* Early single at Bishops Dyke, New Forest (Hampshire), on 21st March. **Nightingale** *Luscinia megarhynchos* Small but notable influx in south and south-east England on 19th/20th April. **Sedge Warbler** *Acrocephalus schoenobaenus* Good numbers in last six days of April. **Blackcap** *Sylvia atricapilla* Notable influx from 16th April. **Whitethroat** *S. communis* Distinct arrival in second half of April, but most in May. Encouraging numbers in May with, for instance, 116 trapped at Portland. **Lesser Whitethroat** *S. curruca* Good arrivals from 23rd April. **Willow Warbler** *Phylloscopus trochilus* Common from second week of April. Falls of 150 on Calf of Man on 19th and 29th April and 120 on 30th, of 100 at Dungeness on 30th April, and of 100 on Lundy on 6th May. **Chiffchaff** *P. collybita* A late arrival and in small numbers. Most did not reach Britain until the end of March and early April. **Spotted Flycatcher** *Muscicapa striata* Almost absent in April. **Pied Flycatcher** *Ficedula hypoleuca* Early individual at Sevenoaks (Kent) on 9th April. **Yellow Wagtail** *Motacilla flava* A male at Staveley sewage farm on 22nd February may have overwintered (cf. *Brit. Birds*, 68: 480). Very few in March, but sizeable influxes in April and May. **Red-backed Shrike** *Lanius collurio* Records from 25th April. Falls in last week of May included seven on the Isle of May (Fife) on 30th, and in Shetland six on Whalsay, up to eight on Fetlar, and twelve on Fair Isle on 26th and eleven there on 31st.

Recent reports *K. Allsopp*

These are largely unchecked reports, not authenticated records

This report covers September and the first part of October. Except when otherwise stated, all dates refer to September.

SEABIRDS

The large numbers of shearwaters present off the north-east coast, reported in the November issue, were not subsequently observed in the English Channel. **Sooty Shearwaters** *Puffinus griseus* were seen in small numbers off Portland Bill (Dorset), Dungeness (Kent) and the Casquets (Channel Islands), with 11 at the last locality on 11th. On the same date, Dungeness had its largest ever autumnal passage of **Sandwich Terns** *Sterna sandvicensis* (360), accompanied by 59 free-booting **Arctic Skuas** *Stercorarius parasiticus* and **Great Skuas** *S. skua*. At the same locality, an adult female **Magnificent Frigatebird** *Fregata magnificens* was observed flying eastwards on the 15th, much to the consternation of the non-seawatching birdwatchers nearby, including the new chairman of the Rarities Committee. A further large seabird movement there, on 2nd October, featured 2,000 **Kittiwakes** *Rissa tridactyla*, 250 **Gannets** *Sula bassana* and an immature **Sabine's Gull** *Larus sabini*. On the same date, farther east, at Sandwich Bay (Kent), another good seawatch, surprisingly not reporting **Kittiwakes**, produced a **Sooty Albatross** *Phoebastria fusca*, which will, if accepted, be a new species for Europe. Large numbers of **Gannets** and over 200 **Little Gulls** *Larus minutus* were reported feeding off Cap Gris Nez (France) on 2nd and 3rd October. **Black Terns** *Chlidonias niger* have been scarce this autumn, so that a total of 87 along the Irish south coast was unusual, as were single immature **White-winged Black Terns** *C. leucopterus* at Eye Brook Reservoir (Leicestershire), Empingham Water (Leicestershire) on 25th and Cannock Reservoir (Staffordshire) on 27th.

HONEY BUZZARDS AND OSPREYS

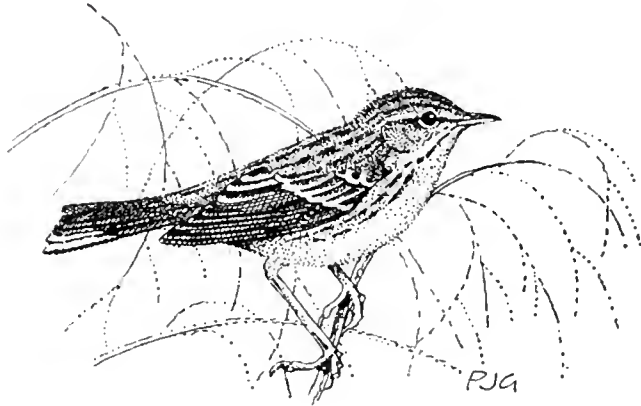
On the 16th, an anticyclone developed over southern Finland, establishing a warm easterly airstream from eastern Europe towards Scotland, which persisted for several days. The subsequent widespread occurrences of **Honey Buzzards** *Pernis ptilorhynchus* and **Ospreys** *Pandion haliaetus* suggests a large influx from the Continent. The former were reported from Portland Bill (Dorset), with one on 23rd, two on 26th and 2nd October and four on 3rd October, Gibraltar Point (Lincolnshire), with singles on 28th and 5th October, and the Isles of Scilly, with three during the same period. Singles of the latter species were seen at Eye Brook Reservoir on 19th, Portland Bill on 24th, 26th and 28th, Sunderland (Tyne and Wear) on 26th, the Casquets on 26th, Fair Isle (Shetland) on 27th, and Sandwich Bay on 5th October.

PASSERINES AND NEAR-PASSERINES

During the period of easterly winds mentioned above, Fair Isle recorded its usual impressive list of vagrants among a good fall of passerines. Rarities included **Lanceolated Warblers** *Locustella lanceolata* on 14th and 17th, the first **Pallas's Grasshopper Warbler** *L. certhiola* for 20 years from 20th, single **Yellow-browed Warblers** *Phylloscopus inornatus* on 18th and 25th, a **Pechora Pipit** *Anthus gustavi* and a **Red-throated Pipit** *A. cervinus* on 17th, a **Citrine Wagtail** *Motacilla citreola* on 22nd and as many as five **Little Buntings** *Emberiza pusilla* from the 17th. Farther south in the same movement, a **Tawny Pipit** *Anthus campestris* and two **Red-breasted Flycatchers** *Ficedula parva* came aboard a fishing boat off Marsden (Tyne and Wear) on 17th. A **Rustic Bunting** *Emberiza rustica* was seen at Hartlepool (Cleveland) on the same day, an **Alpine Swift** *Apus melba* at Scarborough

(Yorkshire) on 18th and an **Arctic Warbler** *Phylloscopus borealis* at Gibraltar Point on 19th. Sandwich Bay and Dungeness also experienced a good fall of **Blackcaps** *Sylvia atricapilla* and **Lesser Whitethroats** *S. curruca* from 17th to 19th.

On 16th, the development of low pressure in mid-Atlantic finally ended the long period of anticyclone-dominated conditions experienced since June. The establishment of a strong westerly flow right across the Atlantic, with upper winds reaching 50 knots at 10,000 ft on occasions, not only brought the much-needed rain, but also no less than seven **Blackpoll Warblers** *Dendroica striata*.



The first was at Prawle Point (Devon) on 18th, followed by five on the Isles of Scilly during 4th-10th October, and another—the first ever in Ireland—on Cape Clear Island (Cork) on 8th October. A **Myrtle Warbler** *D. coronata*, similarly a new Irish species, was also reported from Cape Clear Island on 9th October and a **Bobolink** *Dolichonyx oryzivorus* from Tresco (Isles of Scilly) on 28th.

LATEST NEWS

The most exciting recent events have been in Sweden, where, at the island of Torö (60 km south of Stockholm), 16,400 **Pine Grosbeaks** *Pinicola enucleator* flew west between dawn and early afternoon on 13th November, with a further 1,000 on the following day. An irruption in such numbers is unprecedented in Scandinavia. Will some reach Britain's east coast?

The following rarities were reported in the last week of October and early November: **Glossy Ibis** *Plegadis falcinellus*, Ham Marshes, Faversham (Kent); two **Black Ducks** *Anas rubripes*, Tresco (Isles of Scilly); **Yellow-billed Cuckoo** *Coccyzus americanus*, Pennington Marshes (Hampshire); **Booted Warbler** *Hippolais caligata*, Beachy Head (Sussex); **Pallas's Warblers** *Phylloscopus proregulus*, Donna Nook (Lincolnshire) and Spurn (Humberside); **Olive-backed Pipit** *Anthus hodgsoni*, Wells (Norfolk).

Spotted Sandpipers nesting in Scotland: correction

The dimensions of the four eggs (page 290, lines 26 and 27) were given incorrectly: all measurements should be reduced by a factor of ten.

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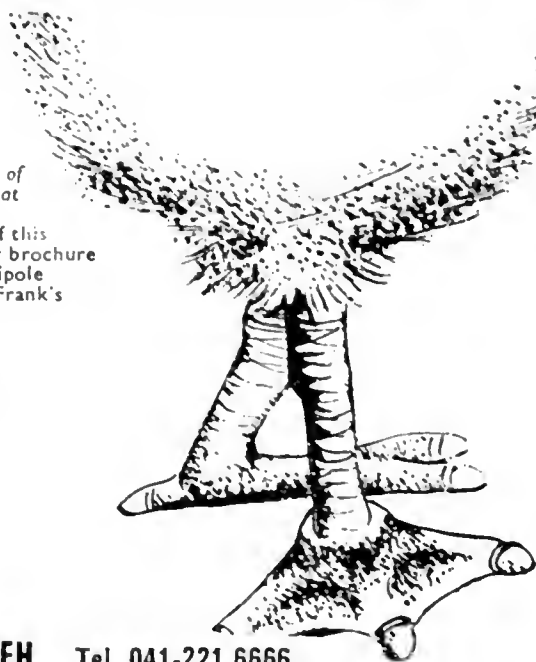
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(*The rate for binding is £4.00 per volume*)

*Please fill in your name and address in both spaces
on this page*

Failure to do this may cause delay. The lower half of this sheet will be sent back to you
as a receipt; the upper is the label for the return of your bound volume

Name

Address

.....

.....

*Please complete
the binding form
overleaf*

Receipt for *British Birds* binding

From P. G. Chapman & Co Ltd, Kent House Lane,
Beckenham, Kent BR3 1LD

*We acknowledge with thanks receipt of your issues of British
Birds for binding, and your cheque P.O. for £*

Date

P. G. CHAPMAN & CO LTD



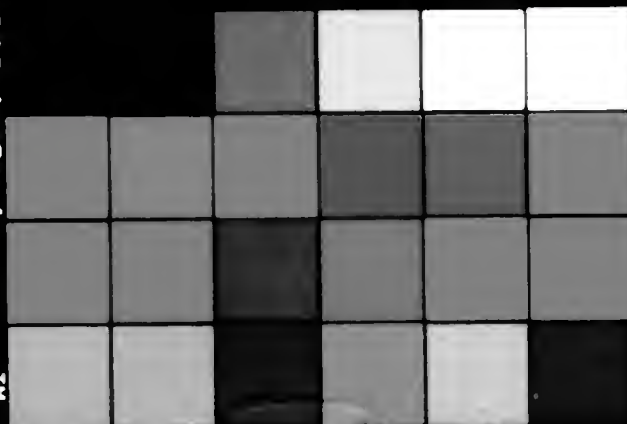




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